

# HELMINTHOLOGICAL ABSTRACTS

*incorporating*

**BIBLIOGRAPHY OF HELMINTHOLOGY**

COMPILED FROM WORLD LITERATURE OF 1955



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### BIBLIOGRAPHY OF HELMINTHOLOGY

Abstracts in the present number are by:

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# HELMINTHOLOGICAL ABSTRACTS

INCORPORATING BIBLIOGRAPHY OF HELMINTHOLOGY

FOR THE YEAR 1955

Vol. 24, Part 5

## 476—Acta Medica. Budapest.

- a. KULKA, F. & BARABÁS, M., 1955.—“Clinical aspects and X-ray diagnosis of paragonimiasis.” 7 (3/4), 371–390. [Russian summary p. 390.]

## 477—Acta Medica et Biologica. Niigata.

- a. KANESHIMA, S. & SAKAE, F., 1955.—“A case of liver echinococcosis (alveolar type) disclosed by needle biopsy.” 3 (2), 105–110.

## 478—Acta Pediátrica Española.

- a. SÁEZ CAUSILLAS, A., 1955.—“Ascaridosis bronquial tratada con terramicina. Un caso de infestación mixta parasitaria por oxiuros y *Ascaris lumbricoides*, con localización bronquial episódica de este último.” 13 (147), 167–171.  
b. LARDELLI, A., 1955.—“Sobre un caso de granuloma ascaridiano.” 13 (154), 811–818.  
c. PÉREZ MORENO, B., 1955.—“*Tenia saginata* en un lactante de un mes de edad.” 13 (154), 819–822.

(478a) A boy, aged 12 months, suffering from a long-standing cough with bouts which frequently culminated in vomiting was apparently passing no helminth eggs. After receiving (i) a preparation of xanthonine and calomel and (ii) suppositories of terramycin chlorhydrate at the rate of 125 mg. every six hours on the first and second days and every 12 hours on subsequent days, he eliminated *Ascaris lumbricoides* and oxyurids in large numbers, and the cough gradually disappeared. M.MCK.

(478b) A hard granuloma of tangerine size developed just below the ribs in a small girl who had vomited and evacuated *Ascaris lumbricoides* after anthelmintic treatment and was passing *Ascaris* and *Trichuris* eggs. The tumour, which firmly adhered to liver and transverse colon, was found to contain a live *Ascaris*. M.MCK.

(478c) A three-months-old baby voiding eggs of *Taenia saginata* received a drink of pumpkin seeds followed by castor oil. Numerous segments were passed. The vomiting, diarrhoea and fever, which had started with the feeding of a commercial fatty preparation from the first month, were cured. M.MCK.

## 479—Acta Pharmaceutica Jugoslavica.

- a. AKAČIĆ, B. & PETRIČIĆ, J., 1955.—“Aetheroleum thymi kao anthelmintik.” [The volatile oil of thyme as an anthelmintic.] 5 (4), 183–188. [English summary p. 188.]

(479a) The average quantity of volatile oil obtained from *Thymus vulgaris* was 1·8 per cent. The oil contained 24·5% phenol. The action of the volatile oil and of its non-phenolic portion were compared with that of thymol on ascarids, leeches and mice. Thymol had the most pronounced effect while the non-phenolic portion showed low toxicity, especially to ascarids. G.I.P.

\*Titles so marked throughout this number have not been seen in the original.

**480—Acta Tropica. Basle.**

- a. FAIN, A., 1955.—“Un nouveau schistosome du cormoran au Ruanda-Urundi (Congo Belge)—*Ornithobilharzia baeri* n.sp.” 12 (4), 356–360.

(480a) *Ornithobilharzia baeri* n.sp. is described and figured from the portal and mesenteric veins of the cormorant *Phalacrocorax africanus*, at Astrida, Ruanda-Urundi. It so closely resembles *Macrobilharzia macrobilharzia* Travassos, that Fain does not accept *Macrobilharzia* as a valid genus and places it and *Paraschistosomatium* in the synonymy of *Ornithobilharzia*. The most important characters of *O. baeri* n.sp. are the variations in size of the males (7.3 mm. to 41 mm.), the relatively small size of the females (2.582 mm. to 3.55 mm.) and the great variation in the number of testes, ranging from 138 in a male 8.3 mm. long to 274 in one 41 mm. long.

R.T.L.

**481—Advisory Leaflet. Ministry of Agriculture, Fisheries and Food. London.**

- a. ANON., 1955.—“Stem and bulb eelworm on vegetables.” No. 440, 6 pp.

**482—Ärztliche Forschung.**

- a. OELKERS, H. A., 1955.—“Über die Wirkung proteolytischer Fermente auf parasitische Würmer.” I. Originalarbeiten, 9 (5), 259–260.

(482a) Oelkers' experiments show that dead *Taenia saginata* and *Fasciola hepatica* are digested rapidly by anthelmintics containing trypsin and papain. The cuticle of *Ascaris lumbricoides* is only very little affected by trypsin. Even high concentrations and activated papain do not digest dead ascarids. *Enterobius* ova and larvae and *Ascaris* and cestode ova are not affected by high concentrations of trypsin and papain.

A.E.F.

**483—Ärztliche Wochenschrift. Berlin.**

- a. KUTSUZAWA, T. & TOYODA, T., 1955.—“Über einen mit dem Kontrastmittel Biligrafin vor der Operation festgestellten *Ascaris lumbricoides* in den Gallenwegen.” 10 (29), 671–672.

(483a) Kutsuzawa & Toyoda, working at the Akita Hospital, Japan, report that they have identified by means of X-rays an *Ascaris* in the bile-duct of a 31-years-old woman. A.E.F.

**484—Afrique Française Chirurgicale.**

- a. FRAILONG, J. & THIODET, J. C., 1955.—“Migration rétro-péritonéale d'un kyste hydatique du foie.” 13 (4), 415–416.  
 b. LIARAS, H., 1955.—“Incarcération de membrane hydatique dans un lobe pulmonaire. Résection segmentaire.” 13 (4), 431–432.  
 c. LIARAS, H. & DUMAZER, R., 1955.—“Epanchement pleural masquant un kyste hydatique du poumon. Diagnostic par bronchographie.” 13 (4), 439–440.  
 d. VERGOZ, C., D'ESHOUGUES, J. R. & STOPPA, R., 1955.—“Les hydatido- et choléro-péritonées hydatiques ne sont pas des kystes géants de l'abdomen.” 13 (4), 441–445.

**485—Agronomía. Lima.**

- a. LIZARASO SANCHEZ, Y., 1955.—“El nematode, *Meloidogyne incognita* var. *acrita*, parásito de las raíces del tomate en Lima.” 21 (82), 74–87.

(485a) Sanchez gives a detailed description, with illustrations, of a root-knot nematode found severely infesting tomatoes in Peru. Comparing the measurements and perineal patterns of this population with those given by Chitwood for *Meloidogyne incognita* and *M. incognita* var. *acrita* she concludes that the Peruvian population is *M. incognita* var. *acrita*.

M.T.F.



**486—Algérie Médicale.**

- a. THIODET, J., 1955.—“Allergie et anaphylaxie hydatiques. Réactions biologiques employées pour le diagnostic de l'hydatidose.” 59 (3), 151-170.
- b. AUBRY, G. & THIODET, J., 1955.—“Les manifestations péritonéales de l'échinococcose en clinique courante.” 59 (3), 171-191.
- c. THIODET, J., FOURRIER, A., PÛ, S. & THIODET, JACQUES, 1955.—“Les épanchements des séreuses dans l'hydatidose.” 59 (3), 193-203.
- d. THIODET, J., FOURRIER, A. & POGGIOLI, A., 1955.—“Les réactions hépatiques de l'hydatidose.” 59 (3), 205-216.
- e. BOURGEON, R., PIETRI, H., PANTIN, J. P. & GUNTZ, M., 1955.—“La place de la splénoportographie en hydatidologie hépatique. Son intérêt thérapeutique.” 59 (3), 217-227.
- f. LACROIX, A. C., JOUANNEAU, J. & THIODET, J., 1955.—“Les aspects de la prophylaxie de l'hydatidose en Algérie.” 59 (3), 229-234.
- g. LACROIX, A. C., SAYAG, A. & MARTIN, Y., 1955.—“A propos de trois cas de bilharziose urinaire, observés à Alger.” 59 (11), 739-743.

(486a) Thiodet discusses the biological reactions in use for the diagnosis of hydatid disease. He considers the Casoni reaction to be the most reliable and also to have the advantage that the early allergic phase and the later anaphylactic phase can be distinguished by it. Deviation of complement, although less sensitive and reliable, benzoin precipitation and eosinophilia are also of value.

S.W.

**487—American Journal of Clinical Pathology.**

- a. DIMMETTE, R. M., SPROAT, H. F. & KLIMT, C. R., 1955.—“Examination of smears of urinary sediment for detection of neoplasms of bladder. Survey of an Egyptian village infested with *Schistosoma haematobium*.” 25 (9), 1032-1042.
- b. LICHTENBERG, F. & VALLADARES, C. DO P., 1955.—“Compression examination of fresh tissue for ova of *Schistosoma mansoni*.” 25 (9), 1099-1102.
- c. SHAMMA, A. H., 1955.—“Schistosomiasis and cancer in Iraq.” 25 (11), 1283-1284.

(487a) The diagnosis of malignant neoplasms by using the exfoliative cytologic method is well established but examinations of the urinary sediment from 1,556 persons during a mass survey of an Egyptian village, where *Schistosoma haematobium* infections were prevalent, proved that it was of little practical value in detecting malignant tumours of the bladder.

R.T.L.

(487b) A simple and rapid preparation for the microscopical diagnosis of schistosome eggs can be made if a fragment of fresh tissue, 3 to 4 mm. in size, taken during operation or autopsy, is pressed between two ordinary microscopical slides and the ends of the slides sealed together by adhesive tape.

R.T.L.

**488—American Journal of Enology.**

- a. RASKI, D. J., 1955.—“Additional observations on the nematodes attacking grapevines and their control.” 6 (2), 29-31.

(488a) Following his earlier work on the control of root-knot nematodes in grapevines [for abstract see Helm. Abs., 23, No. 479f] Raski has again found that nematocides applied to vineyard soil immediately after the removal of vines heavily infested with *Meloidogyne incognita* var. *acrita* were ineffective, probably because the nematodes were protected in the old vine roots. At least three years' rotation is necessary before fumigation can be effective. Further observations and experiments are being carried on.

M.T.F.

**489—American Journal of Gastroenterology.**

- a. ROSENBERG, J., NEUMANN, E. & MATZNER, M. J., 1955.—“The recognition and present treatment of endemic fish tapeworm infestation (diphyllobothriasis).” 24 (2), 121-136.

(489a) During 1950-53 thirteen instances of cestode infection, with *Diphyllobothrium latum*, were observed among female patients at the Brooklyn Jewish Hospital. In every case the infection had apparently been acquired by tasting inadequately cooked “gefûlte” fish. A complete blood count was made in eleven of the cases but no evidence of anaemia or eosinophilia was obtained.

R.T.L.



**490—American Journal of Ophthalmology.**

- a. JEFFERY, M. P., 1955.—“Ocular diseases caused by nematodes.” 40 (1), 41–53.

(490a) Two cases of chronic eye complaints are reported, one of phlyctenular keratoconjunctivitis with severe recurrences, the other of chronic catarrhal conjunctivitis. As both cleared up in two days after treatment for roundworms, Jeffery investigated eye hospital patients for a possible association of Ascaris and hookworm infections and amoebic dysentery with eye diseases. Of 824 cases with positive stools 77.9% had eye diseases and 22.1% had no eye disease. Of the 393 cases with negative stools 13.5% had eye diseases and 86.5% had no eye disease. The tabulated results show that the most common involvement of the superficial tissues of the eye was phlyctenular keratoconjunctivitis.

R.T.L.

**491—Anais da Academia Brasileira de Ciencias.**

- a. TRAVASSOS, L., 1955.—“Sobre dois novos Dicrocoeliidae de Chiroptera.” 27 (4), 561–565.

(491a) *Metadelphis alvarengai* n.sp. from the gall-bladder of the bat *Eptesicus chapmani* from the state of Pará, Brazil, is distinguished from *M. evandroi* chiefly by the sub-triangular shape of the vitellaria. *Parametadelphis* n.g., with the one species *P. compactus* n.sp. from the gall-bladder of *Glyphoncteris behni* from Pará, resembles *Metadelphis* in the distribution of the uterus but differs mainly in that the widely separated testes are symmetrically placed, lying, in part, level with the acetabulum, while the suckers are relatively large.

M.MCK.

**492—Anales de la Facultad de Medicina de Montevideo.**

- a. BELLO, R. DI, 1955.—“El diagnóstico y las formas clínicas de la hidatidosis cardíaca.” 40 (3/4), 93–108. [English summary pp. 104–105.]  
b. MENÉNDEZ, H. & BELLO, R. DI, 1955.—“Corazón pulmonar crónico hidático.” 40 (3/4), 133–152. [English summary pp. 150–151.]

**493—Anales del Instituto de Biología. Mexico.**

- a. CABALLERO Y C., E., 1955.—“Helmintos de la República de Panamá. XVIII. Algunos tremátodos de crocodilianos. 1a. parte.” 26 (2), 433–446.

(493a) Caballero redescribes and figures *Acanthostomum scyphocephalum*, *A. caballeroi* and *Pachypsolus sclerops* from a *Caiman fuscus* from Chepo Pacora, Panama. The transference to *Atrophecaecum* by Skryabin (1955) of those species of *Acanthostomum* with an anus is considered invalid as the anus is not always visible.

M.MCK.

**494—Anales del Instituto de Medicina Regional. Tucumán.**

- a. MAYER, H. F., 1955.—“Contribución al conocimiento de *Stephanurus dentatus* Diesing, 1839.” 4 (2), 203–212. [French summary p. 212.]

(494a) Mayer redescribes *Stephanurus dentatus* from pigs killed at the municipal abattoir of Corrientes, Argentina. His measurements are tabulated with those given by García, Neveu-Lemaire, Joan, Pinto and Mönnig and some of them differ from those hitherto recorded. From figures obtained from slaughterhouse records, he estimates that the incidence in Corrientes varies from 20% to 50%, whereas in other provinces of the country it appears to be small or nil.

M.MCK.

**495—Annales de Médecine Vétérinaire.**

- a. GRÉGOIRE, C. & POUPLARD, L., 1955.—“Synthèses de pathologie parasitaire. III. Le traitement des ascaridioses.” 99 (4), 376–379.  
b. GRÉGOIRE, C. & POUPLARD, L., 1955.—“Synthèses de pathologie parasitaire. III. Le traitement des ascaridioses. Note complémentaire concernant la pipérazine et ses dérivés.” 99 (6), 627–628.

(495a) Grégoire & Pouplard review the various drugs which have been used in the



treatment of ascarids in domestic animals and birds and conclude that the piperazine derivatives, especially the adipate as it has a high efficacy and low toxicity, are the remedies of choice.

S.W.

(495b) Grégoire & Pouplard summarize the excellent results obtained with piperazine adipate as an anthelmintic for domestic animals and poultry. It has a high efficacy, especially against ascarids, and a low toxicity and can be easily administered either by nasal sound or in the food. Other salts, such as the citrate, can be administered to birds in the drinking water.

S.W.

#### 496—Annales Paediatrici.

- a. SALAM, M., RIZK, E. & ZELLWEGER, H., 1955.—“Intestinal parasitism in Lebanon. A statistical analysis of 1000 children.” **185** (5), 310–319. [French & German summaries pp. 318–319.]

(496a) Examination of the faeces and of anal swabs from 1,000 Lebanese children at the outpatient clinic and in the Pediatric Department of the American University Hospital in Beirut gave the actual numbers of infected individuals as: *Enterobius vermicularis* 247, *Ascaris lumbricoides* 222, *Trichuris trichiura* 165, *Strongyloides stercoralis* 8, *Trichostrongylus colubriformis* 3, *Ancylostoma duodenale* 3, *Dicrocoelium dendriticum* 9, *Fasciola hepatica* 1, *Taenia saginata* 113, *Hymenolepis nana* 51 and *H. diminuta* 1. These figures are also analysed under five age groups, showing that the rate of infection increased with age. Eosinophilia was as frequent in a group with no parasitic infection as in infected children except those with ascariasis in which it was slightly higher. Abdominal disturbances were rarely observed.

R.T.L.

#### 497—Annales Universitatis Mariae Curie-Skłodowska, Lublin.

- a. STOJAŁOWSKA, W. & MONIUSZKO, A., 1955.—“Pasożyty przewodu pokarmowego dzieci w żłobkach i przedszkolach Lublina.” [Parasites of the alimentary tract of children in nurseries and preparatory schools in Lublin.] *Seccio D*, **10**, 405–422. [English & Russian summaries pp. 419–422.]

#### 498—Annali della Facoltà di Medicina Veterinaria. Pisa.

- a. BOTTI, L., 1955.—“Su un caso di adenocarcinomatosi epatica in cane associata ad infestazione massiva da *Opisthorchis felinus* Rivolta 1884.” **8**, 241–256. [English & French summaries p. 255.]

#### 499—Annali di Medicina Navale e Tropicale.

- a. BELLELLI, L. & MASTRANDREA, G., 1955.—“Considerazioni sul quadro dispeptico coprologico in alcune elmintiasi intestinali.” **60** (6), 697–702.

(499a) From the analyses of the faeces of 675 persons with intestinal helminths in Rome, Bellelli & Mastrandrea have attempted to relate the type of infection to the colour, consistency and acidity of the faeces, and to the presence of crystals, fatty acids, undigested starch, meat, fat and vegetable remains.

M.MCK.

#### 500—Annali della Sanità Pubblica.

- a. TRAVERSA, E. & POLIZZI, F., 1955.—“L'idatidosi problema di sanità pubblica.” **16** (5), 1081–1102. [English, French, German & Spanish summaries pp. 1098–1101.]
- b. PISTOLETTI, G., 1955.—“Indagini sulla incidenza della ossiuriasi in provincia di Pisa e sulla possibilità di una bonifica di massa.” **16** (5), 1115–1125. [English, French, German & Spanish summaries p. 1124.]

(500a) Traversa & Polizzi review the epidemiology, clinical aspects and prophylaxis of hydatidosis and quote statistics on its occurrence in 15 countries.

M.MCK.



(500b) Of 1,323 children from schools and children's summer communities in the province of Pisa, Italy, 43.76% had *Enterobius vermicularis* infections. To compare the efficacy of egressin tablets and piperazine hydrate syrup, 39 children were given three tablets daily for two days (each containing 0.9 gm. of isopropyl-m-cresylic ester of isoamylcarbamic acid) and 26 were still negative after 30 days. Of 22 children treated with the syrup (containing 0.85 gm. of the salt per c.c.) 20 were cured; the dosage rate was 1 c.c. per year of age three times daily for two periods of seven days separated by a week's rest. M.MCK.

### 501—Annals of Internal Medicine.

- a. SPINGARN, C. L. & EDELMAN, M. H., 1955.—“Observations on the treatment of schistosomiasis mansoni with foudin.” 42 (6), 1199-1205.

(501a) Spingarn & Edelman report the results of a study of the treatment of schistosomiasis mansoni with foudin among patients of Puerto Rican birth, living in New York City, who had viable eggs in the stools or in rectal biopsy specimens. Of 22 patients given 40-50 c.c. of the drug intramuscularly within a 15 to 19-day period 60% failed to respond to the single course of therapy. Second courses given to four of these patients were also ineffective. When 24 patients were given 19-57 c.c. of foudin (according to body-weight) in five days, the number of failures was reduced to 28%, and the treatment was most effective in the patients who had received the largest amounts of foudin (1 c.c. per kg.). Treatment was well tolerated by the patients who received the long course but reactions were common and severe among those given foudin in five days. This latter procedure was therefore regarded as unsafe. Administration of dimercaprol seemed to be of clinical value in two cases of severe foudin intoxication but had no detectable effect on the electrocardiographic changes produced by foudin in three cases. D.L.H.R.

### 502—Annals and Magazine of Natural History.

- a. BISSERU, B., 1955.—“On some nematodes from African birds.” Ser. XII, 8 (94), 765-786.

(502a) *Contracaecum lawrencei* n.sp. from *Anhinga rufa levaillantii* in Zululand, is described and figured. The male measures 22 mm., the female 24 to 30 mm. There are over 50 pre-anal papillae and 12 post-anals, in pairs. The spicules are 0.82 to 1 mm. long with blunt, slightly rounded tips, the distal quarter being twisted. *Subulura brumpti* from *Pternistes swainsoni*, *Histioccephalus tridens* from *Neotis cafra denhami* and *Hartertia zuluensis* from *Eupodotis caerulescens* are recorded from Northern Rhodesia [new host records?]. *Habronema buckleyi* n.sp. from the white-quilled black korhaan *Afrotis afra afraoides*, Northern Rhodesia, can be distinguished from hitherto described species, except *H. incerta*, by its asymmetrical cervical and caudal alae and by the pointed slender spicules, the right spicule (0.36 to 0.41 mm. long) being stouter than the left spicule (0.21 to 0.28 mm. long). Six pairs of pedunculated papillae support the caudal alae, four are pre-anals and two post-anals; there is a large papilla left of the cloaca and a group of six small sessile papillae on the ventral surface of the tail which is covered with longitudinal rugae. *H. buckleyi* has close affinities with *H. incerta* but is much smaller (the male being 7.9 to 8 mm.) and the sessile papillae are differently arranged. The female is 12 to 14.1 mm. long and the tail is short, being 0.15 to 0.195 mm. in length. R.T.L.

### 503—Annals of the New York Academy of Sciences.

- a. FRYE, W. F., 1955.—“Nutrition and intestinal parasitism.” 63 (2), 175-185. [Discussion p. 185.]  
b. LOUGHLIN, E. H. & MULLIN, W. G., 1955.—“Certain aspects of deficiency diseases of the tropics and treatment of some related infections.” 63 (2), 276-299. [Discussion pp. 299-300.]  
c. MOUSA, A. H., EL MOFTY, A., KHATTAB, M., EL DEEB, A. & HASHEM, M., 1955.—“Nutritional disorders in bilharzial cases with hepatosplenic affection.” 63 (2), 301-310.

(503a) Frye points out that in helminthic infections the number of parasites in the body is increased only by reinfection, whereas bacteria and protozoa increase within the body of the host, and that this is a fundamental difference in the study of the diseases they cause and



of resistance to them. He summarizes the work done on the effect of diet on the resistance of fowls to *Ascaridia galli*, horses to *Parascaris equorum*, dogs to ascarids and hookworms, and rats to *Nippostrongylus muris* and concludes that, in general, resistance is most potent when the host receives a well balanced ration including adequate specific vitamins, minerals and other essential substances.

S.W.

(503b) Loughlin & Mullin, in this survey of the association between deficiency diseases and infections, mention *Diphyllobothrium latum* and anaemia in Finland, the possible aggravation of kwashiorkor by the presence of *Ascaris lumbricoides*, and the diseases caused by hookworms, filariae and whipworms. They discuss the anthelmintics which can safely be given in cases of malnutrition and debilitation, namely, piperazine compounds, hexylresorcinol and various formulations of tetracycline and oxytetracycline.

S.W.

(503c) The authors studied the nutritional aspects of three types of hepatic fibrosis and cirrhosis in a group of 96 patients living on the same diet and in the same environment. Histopathology showed the aetiology to be predominantly parasitic in 40%, nutritional in 32% and viral in 28%, all having urinary or intestinal schistosomiasis, or both. It appeared that those with hepatic schistosomiasis were more susceptible to viral hepatitis. They list and illustrate the findings characteristic of each group and discuss their significance.

S.W.

#### 504—Annotationes Zoologicae Japonenses.

- a. SAWADA, I., 1955.—“Studies on tapeworms of the domestic fowl found in Japan.” 28 (1), 26–32.

(504a) Sawada gives concise descriptions of the morphology and life-histories of nine species of cestodes which he had already reported as parasites of domestic fowls in Japan [in *Journal of Nara Gakuji University*, 1952, 1 (3), and 1953, 2 (2) and 3 (2), *Zoological Magazine*, 1953, 62, 179–185 and *Japanese Journal of Sanitary Zoology*, 4, 61–74]. In 1952 he had found that the ants *Tetramorium caespitum jacoti* and *Pheidole vineladica* are naturally infected with the cysticercoids of *Raillietina* (R.) *tetragona*, and *T. caespitum jacoti* with those of *R. (R.) echinobothrida*, and that 36 to 40% of a small beetle *Tachys laetificus* collected from poultry yards contained cysticercoids of *R. (Skrjabinia) cesticillus*. In 1953 he ascertained *Euponera solitaria* to be an intermediate host for *R. (Paroniella) kashiwarensis* which he described as a new species. Since then he has been able to add *Amara chalcites*, *A. chalophoca*, *Stenolophus propinquas*, *Harpalus tinctulus*, *Rhagadus microcephalus* and *Bradytus simplicidens* to the list of intermediate hosts of *Raillietina (Skrjabinia) cesticillus*, and by feeding them on *Hister cadaverinus*, he has infected fowls with *Hymenolepis (Weinlandia) carioca*. The Japanese vectors of *Hymenolepis (W.) cantaniana*, *H. (H.) exigua*, *Amoebotaenia oligorchis* and *A. sphenoides* are still unknown.

R.T.L.

#### 505—Archiv für Experimentelle Veterinärmedizin.

- a. BORCHERT, A. & KALBE, I., 1955.—“Über die Widerstandsfähigkeit der Eier von *Ascaris lumbricoides* L. bei der natürlichen Kompostierung.” 9 (1), 142–144.  
 b. BORCHERT, A. & POLZIN, H., 1955.—“Untersuchungen über das Vorkommen der wichtigsten Endoparasiten aus grossen Tierbeständen.” 9 (4), 549–556.  
 c. KALBE, I., 1955.—“Untersuchungen über die Entwicklungsfähigkeit der Eier von *Ascaris lumbricoides* L. und *Parascaris equorum* Goeze nach Abwasseraufenthalt und unter anderen biologischen Bedingungen.” 9 (4), 557–568.  
 d. MATTHIAS, D., 1955.—“Zur Epidemiologie der Bornaschen Krankheit.” 9 (6), 824–843.

(505a) Borchert & Kalbe have investigated the survival of *Ascaris lumbricoides* eggs in compost made from city and slaughterhouse refuse in two compost works in the neighbourhood of Berlin. The compost was prepared by stacking the refuse over poles, which were later withdrawn to allow ventilation, and natural rotting was induced by fungi, bacteria and earthworms. The heaps were turned over after several weeks. When *Ascaris* eggs and mature worms were placed in specified parts of the heaps and examined daily they decomposed in four to ten days indicating that the compost was safe as manure.

M.MCK.



(505b) Borchert & Polzin record in detail the results of their examinations of the faeces of 781 horses, 1,639 cattle, 1,575 sheep and 1,991 pigs taken as random samples on 480 establishments in Greater Berlin and the provinces of Saxony, Thuringia and Mecklenburg. They set out differences of diagnostic value between the larvae of gut-dwelling nematodes and the first-stage larvae of lungworms, and between various species of lungworm larvae. M.MCK.

(505c) Fertilized but unembryonated eggs of *Parascaris equorum* and of *Ascaris lumbricoides* from the pig were placed in waste city water (pH 7.5 in the absence of oxygen) or in the sedimented slime in three-litre containers. As the sojourn of the eggs increased from 7 to 61 days there was a greater mortality and an increasing delay in subsequent development, these effects being more marked when the containers were in the open than when in the laboratory. The mortality did not reach 100%. Embryonated eggs were more resistant than unembryonated eggs and those of *P. equorum* withstood conditions better than those of *A. lumbricoides*. When kept at 4°C., the viability of unembryonated eggs of both species was lost in about 20% after one day and in about 60% after 28 days. At -4°C., six days' sojourn destroyed completely the viability of unembryonated *P. equorum* eggs but if this freezing was interrupted daily for an hour, all viability was destroyed in seven days. Unembryonated eggs which still developed after freezing were not infective but those which developed after the water and slime treatment, did remain infective. M.MCK.

(505d) Describing his experiments on the transmission of Borna disease [enzootic meningo-encephalitis] in many animals, Matthias includes details of his unsuccessful attempts to infect foals by administering, through nasal sound or via the food, suspensions of strongylid larvae which had been placed in solutions containing virus. M.MCK.

#### 506—Archiv für Hydrobiologie.

- a. SIOLI, H., 1955.—"Zur Ökologie des Schistosomiasis-Trägers *Tropicorbis* (*Obstructio*) *paparyensis* F. Baker von Fordlândia (Brasilianisches Amazonasgebiet) und ihre praktische Bedeutung." 51 (2), 153-160.

(506a) Sioli has continued his researches into the environmental needs of *Tropicorbis paparyensis*, the intermediate host of *Schistosoma mansoni* in Fordlândia, the only part of the whole of the Amazon district of Brazil where schistosomiasis *mansoni* is endemic. It was already known that this planorbid requires waters of pH between 5.7 and 7.6, but these further studies have shown that a biotope which is fully exposed to the sun's rays is also essential. In Fordlândia optimum conditions exist since the banks of streams have, for the past 25 years, been clear of trees and shrubs. It is not yet certain whether this dependence on the sun's rays is direct or indirect but Sioli recommends reafforestation of stream banks as a control measure. A.E.F.

#### 507—Archiv für Lebensmittelhygiene. [Continuation of Lebensmitteltierarzt.]

- a. SEIDEL, G., 1955.—"Verdauungsversuche zur Feststellung von Trichinellen und Salmonellen." 6 (19/20), 231-233.  
b. HARMS, F., 1955.—"Neues Trichinenschau mikroskop mit Zusatzeinrichtung für Spezialbeleuchtung (Zeiss-Winkel)." 6 (21/22), 242-243.

(507a) When 5% aqueous solutions of papain (with or without alcohol), trypsin, pancreatin, papayotin and a solution of hydrochloric acid and pepsin (concentration 7:9) were tested for digesting meat at room temperature, 37°C., 45°C. and 60°C., it was concluded that a 5%-10% papain solution was the most suitable agent. At the optimum temperature of 60°C. it effected the digestion (apart from the sinews) in one to ten hours. A 1:1 mixture of 10% papain and 10% trypsin solutions dissolved meat in five hours at 60°C. When trichinous pork, which had been kept in glycerin one-and-a-half years, was dissolved by a 10% papain solution in two-and-a-half to four hours at 37°C. the larvae were recovered in a rolled condition and their capsules had undergone digestion. The papain digestion method enabled the detection of about 15% more trichinae in 1 gm. of meat than the usual compressorium method and



proved very suitable for tracing subclinical trichinelliasis in human diaphragms. A papain solution was found to have an almost equal solvent power even after repeated use. This enzyme was ineffective for preparing samples for the compressorium because it rendered them opaque.

M.MCK.

(507b) A new type of microscope, developed by Zeiss-Winkel for the detection of *Trichinella*, has an illumination attachment, connected to the electric light mains, which is used in conjunction with the condenser and produces an even field of adjustable brightness. Change of magnification is effected without refocusing by a device built into the barrel. The coarse and fine adjustments, which are placed under the stage, can be manipulated with the hands resting on the table.

M.MCK.

### 508—Archiv der Pharmazie.

- a. ROSENMUND, K. W. & GUTSCHMIDT, J., 1955.—“Synthesen in der Reihe der Anthelmintika. III. Mitteilung.” 288 (1), 6–11.

### 509—Archives de l'Institut Pasteur de la Guyane Française.

- a. VAN DER KUYP, E., 1955.—“Filariasis in Surinam.” XVI Année, No. 374, 5 pp.

(509a) Microfilariae were found in the blood of 17.4% of 50,861 inhabitants of Paramaribo, i.e. 63.7% of the total population, and 5.3% had elephantiasis. 80% of the 7,113 treated with hetrazan had no microfilariae in their blood during the first year after treatment.

R.T.L.

### 510—Archives Internationales de Pharmacodynamie et de Thérapie.

- a. MACKIE, A. & STEWART, G. M., 1955.—“*In vitro* testing of chemical compounds against vinegar eelworm (*Turbatrix aceti*). Attempted correlation of anthelmintic effect and chemical constitution.” 102 (4), 476–486.  
b. MACKIE, A., STEWART, G. M. & MISRA, A. L., 1955.—“*In vitro* testing of benzothiazoles and some phenothiazine derivatives against *Ascaris lumbricoides* and liver fluke (*Fasciola hepatica*).” 103 (2/3), 187–191.

(510a) Mackie & Stewart have tested derivatives of 2:3-dihydro-3-ketobenzo-1:4-thiazine, of phenothiazine, of rhodanine and of benzothiazole and a number of other chemicals including aliphatic and aromatic halogen compounds, allyl compounds, mercury compounds, aromatic amines, phenols and pyridines against *Turbatrix aceti* in vitro. The activity of unsubstituted 2:3-dihydro-3-ketobenzo-1:4-thiazine was greater than substituted derivatives but of the substituents the chloro- and iodo- were the most potent. In the phenothiazine series phenothiazine was the most effective with phenothiazone slightly less so: 10-acetylphenothiazine was itself inactive but the introduction of a 10-diethylaminoethylamino group produced a considerable lethal effect. The introduction of an allyl group into rhodanine increased its activity. Some of the benzothiazoles showed considerable activity and a marked influence of groups and the position of groups was apparent. Of the miscellaneous compounds the following were the most active: *n*-heptyl and *n*-octyl iodides, allyl isothiocyanate and iodide, mercuric chloride and its ethyl and ethoxyethyl derivatives, diphenylamine and its 4:4'-dibromo- derivative, phenothioxin and xanthone.

S.W.

(510b) Mackie *et al.* have tested benzothiazoles and a few phenothiazine derivatives against *Fasciola hepatica* and preparations of the anterior end of *Ascaris lumbricoides* in vitro and summarize their results in tables. Some of the benzothiazoles were active against both helminths and 6-nitro-2-mercaptobenzothiazole was the most potent against *F. hepatica* being lethal at a concentration of 1:8,000. The effect of different substituent groups and of their position in the molecule on the anthelmintic properties was very marked: in the 2-substituted benzothiazoles the chloro-group was the most potent against liver-fluke, in the 6-substituted 2-chlorobenzothiazoles, the unsubstituted was the most potent followed by the

amino-group and in the 6-substituted 2-mercaptobenzothiazoles the nitro-group substituent proved the most effective. 10-diethylaminoethylaminoacetylphenothiazine had a strongly depressant effect on both *Ascaris* and liver-fluke. S.W.

### 511—Archives of Pathology.

- a. HIGGINSON, J. & DE MEILLON, B., 1955.—“*Schistosoma haematobium* infestation and hepatic disease in man.” 60 (3), 341-346.

(511a) After digestion in strong alkali the pelvic organs from 243 necropsies in Johannesburg were examined for schistosome eggs and their presence or absence was correlated with the state of the liver. There was no significant correlation between the presence of mild schistosome infection and periportal fibrosis, portal cirrhosis or primary hepatic cancer. R.T.L.

### 512—Archivio Veterinario Italiano.

- a. DEIANA, S., 1955.—“Attività ialuronidasi dello *Strongylus* (*Strongylus*) *equinus* e dello *Strongylus* (*Alfortia*) *edentatus*.” 6 (3), 225-229. [English, French, Spanish & German summaries pp. 228-229.]

(512a) Deiana finds that extracts of *Strongylus equinus* and *S. edentatus* reduce synovial viscosity almost as well as an extract of powdered bull testis. The extracts contain enzymatic substances having the biological activity of hyaluronidase and probably facilitate the migration of the parasite through the host's tissues. R.T.L.

### 513—Archivio Zoologico Italiano.

- a. MEYL, A. H., 1955.—“Die bisher in Italien gefundenen freilebenden Erd und Süsswasser-Nematoden.” Year 1954, 39, 161-264. [English, French & Italian summaries p. 264.]  
 b. GERLACH, S. A., 1955.—“Die Nematodenbesiedlung des Sandstrandes und des Küstengrundwassers an der italienischen Küste. II. Ökologischer Teil.” Year 1954, 39, 311-359. [English, French & Italian summaries pp. 358-359.]  
 c. GERLACH, S. A., 1955.—“Die Nematodenbesiedlung des Sandstrandes und des Küstengrundwassers an der italienischen Küste. II. Ökologischer Teil.” [Errata.] 40, 275-279.

(513a) Meyl catalogues, with notes and illustrations and the relevant literature, the 173 species (including one new genus, 13 new species and three new varieties) of soil and fresh-water nematodes hitherto found in Italy. Included are *Rhabditis resistens* n.sp., a new unnamed *Rhabditis*, *Diplogasteroides longispiculus* n.sp., *Panagrolaimus halophilus* n.sp., *Ditylenchus rarus* n.sp., *Neotylenchus italicus* n.sp., *N. thornei* n.sp., *Criconemoides boettgeri* n.sp., *Aphelenchoides ferrandini* n.sp., *Mononchus* (*Sporonchulus*) *micoletzkyi* n.sp., *Monystera paramacrura* n.sp., *M. paravillosa* n.sp., *Bastiania gracilis* var. *octopapillata* n.var., *Pratylenchus pratensis* var. *bicaudatus* n.var., *Dorylaimus obtusicaudatus* var. *vulvapapillatus* n.var. and the first records of *Nothotylenchus*, *Sporonchulus* and *Discolaimus* in Europe. He gives a key to the seven species which he places in the new genus *Thornia*, viz., *T. steatopyga* (Thorne & Swanger, 1936) n.comb. as type species, *T. goffarti* (Meyl, 1953) n.comb., *T. thermophila* (Meyl, 1953) n.comb., *T. parathermophila* (Meyl, 1953) n.comb., *T. rhapalocercoides* (W. Schneider, 1937) n.comb., *T. juvenilis* (de Coninck, 1935) n.comb. and *T. pitheculusana* n.sp., and he further proposes *Longidorus microdorus* (de Man, 1880) as a new combination. M.MCK.

(513b) The nematode fauna found by Gerlach on the Italian coast around San Rossore, near Pisa, of which the systematics were reported in 1952 [for abstract see Helm. Abs., 21, No. 610d], is now examined according to the zones of the shore where they were found, i.e. the submerged zone, the wave-breaking zone and the underground brackish water zone, and are analysed quantitatively and qualitatively. Further nematodes are identified from other parts of the Italian coast and the east coast of Spain and a list is given, with localities, of the species typical of underground littoral waters of Europe. A close relationship is recognizable between the nematodes of coastal underground waters and those of the coarse sand zone of the sublittoral. Gerlach distinguishes six types of littoral nematodes, based on body



structure and method of locomotion, which are distributed in a characteristic way in the three beach zones. [The errata in this paper are reported in *Arch. zool. (ital.) Napoli*, **40**, 275-279.]  
M.MCK.

(513c) Gerlach gives a table of the species of free-living nematodes collected on the Italian coast. This table was omitted from his paper in *Arch. zool. (ital.) Napoli*, **39**, 311-359. He also corrects the more important printing errors in that paper.  
M.MCK.

#### 514—Archivos Uruguayos de Medicina, Cirugía y Especialidades.

- a. TÁLICE, R. V. & PÉREZ MOREIRA, L., 1955.—“Anomalías múltiples de un ejemplar adulto de *Taenia saginata*.” **46** (1/3), 1-12. [English summary p. 11.]
- b. DARDEL, G., 1955.—“A propósito de la equinococosis alveolaris en el Uruguay.” **46** (1/3), 25-32.
- c. BELLO, R. DI & MENÉNDEZ, H., 1955.—“El injerto hidático del pericardio.” **46** (4/6), 167-203. [English summary pp. 197-199.]

(514a) The following anomalies in a specimen of *Taenia saginata* are illustrated and described: helicoid disposition of the strobila, unilateral genital openings, hypoplasia of one side of the strobila accompanied by absence of the corresponding excretory canal, genital organs duplicated in some proglottides and absent in others and presence of some abnormally large genital papillae.  
M.MCK.

(514b) Dardel considers that the first autochthonous case of *Echinococcus alveolaris* in Uruguay, which was reported recently by Ardao at a conference, was acquired from an imported dog. He estimates that the infection of Uruguayan stock reaches 60% as in Argentina.  
M.MCK.

(514c) From a study of 53 cases of hydatid of the pericardium recorded in the literature the authors conclude that this condition results from the development of fertile hydatid elements disseminated by the rupture of a neighbouring cyst in the serous cavity.  
R.T.L.

#### 515—Arquivos da Escola Superior de Veterinária da Universidade Rural do Estado de Minas Gerais.

- a. FREITAS, M. G. & FERREIRA NETO, J. M., 1955.—“Resistência de larvas do gênero *Habronema*, parasito de equídeos a várias temperaturas.” **8**, 9-12. [English summary p. 11.]
- b. FREITAS, M. G., FERREIRA NETO, J. M. & POMPEU MEMÓRIA, J. M., 1955.—“Variação estacional no número de ovos de strongilídeos em fezes de equinos.” **8**, 143-149. [English summary p. 148.]

(515a) When the faeces of horses infected with *Habronema* were kept *in vitro* the larvae survived 11 days at 0°C., 28 days at 5°C., 21 days at 10°C., 14 days at 15°C., 10 days at 20°C., seven days at 25°C. and six days at 30°C., as counted from the time of collection of the fresh faeces.  
M.MCK.

(515b) No significant seasonal variation was observed in the strongylid egg counts taken, for nearly a year, from eleven horses which were stabled part-time in the region of Belo Horizonte, Brazil.  
M.MCK.

#### 516—Arquivos do Museu Nacional. Rio de Janeiro.

- a. RUIZ, J. M. & LEÃO, A. T., 1955.—“Notas helmintológicas. *Alipotrema ribeiroi* n.gen., n.sp. (Trematoda, Plagiorchiidae), parasita de ofídeo brasileiro.” **42** (2), 485-489.
- b. FREITAS, J. F. TEIXEIRA DE, 1955.—“Sobre dois trematódeos parasitos de aves: *Philophthalmus lachrymosus* Braun, 1902 e *Renicola mirandaribeiroi* n.sp.” **42** (2), 585-609.

(516a) Ruiz & Leão describe and figure *Alipotrema ribeiroi* n.g., n.sp. from the snake *Liophis miliaria* from Santos (Praia Grande) in São Paulo State and Ilha Comprida, Iguape, both in Brazil. The genus belongs to the Plagiorchiidae. It seems nearest to *Leptophallus* but the Y-shaped excretory bladder has a short stem and long branches extending to the oral sucker and there is a well developed spermatheca and no external seminal vesicle. M.MCK.

(516b) *Renicola mirandaribeiroi* n.sp. from the brown gaunet *Sula leucogaster* from Mangunhos, Rio de Janeiro city, is distinguished from the eleven species of *Renicola* (including two unnamed species) mentioned in this paper by the combination of the following main characters: the vitellaria do not extend in front of the lobed ovary, the caeca end well behind the acetabulum and the testes lie in a longitudinal line and overlap. *Philophthalmus lachrymosus* from the great white heron *Casmerodius albus egretta*, also from Mangunhos, is redescribed and figured. M.MCK.

### 517—Arzneimittel-Forschung. Aulendorf.

- a. MENDHEIM, H., 1955.—“Erfahrungen mit der Testung von Wurmmitteln an der bandwurminfizierten Ratte.” 5 (5), 296–298.
- b. SEELKOPF, C., 1955.—“Erfahrungen mit der Testung von Wurmmitteln an der bandwurminfizierten Ratte.” 5 (5), 298–299.
- c. ERHARDT, A., 1955.—“Chemotherapeutische Untersuchungen an der Kaninchen-Oxyuriasis mit Piperazinhydrat.” 5 (6), 350–351. [English summary p. 351.]

(517a) Mendheim finds that, contrary to Seelkopf's views, tapeworm-infected rats are not suitable for *in vivo* testing of anthelmintics. The method is costly and tedious and is unreliable. A.E.F.

(517b) Seelkopf, in reply to Mendheim (see preceding abstract), defends his use of tapeworm-infected rats in the testing of anthelmintics. A.E.F.

(517c) Erhardt's experiments show that piperazine hydrate is very effective against *Passalurus ambiguus* infection in rabbits. It is well tolerated and has a therapeutic index of 1:6. A.E.F.

### 518—Atti della Società Italiana delle Scienze Veterinarie.

- a. BONO, G. DEL & EMDIN, R., 1955.—“Indagini coprologiche su cani addetti alla custodia delle greggi del piano di Pisa—nota I.” 9, 556–557. [English & French summaries p. 557.]
- b. BATTELLI, C., 1955.—“Segnalazione della parafilariosi nello zebù dell'Eritrea.” 9, 600–603. [English & French summaries p. 603.]
- c. NARDI, E., 1955.—“Ricerche parassitologiche sugli ovini pugliesi.” 9, 603–606. [English & French summaries p. 606.]
- d. CORSALINI, T., 1955.—“Dati rilevati a Matera sulla frequenza della infestazione da *Echinococcus granulosus* nel cane e della idatidosi negli animali.” 9, 606–609. [English & French summaries pp. 608–609.]
- e. BONO, G. DEL, 1955.—“Indagini elettroforetiche su liquido idatideo di bovini ed ovini.” 9, 628–631. [English & French summaries p. 631.]
- f. LEI, G. M. & SIMULA, R., 1955.—“Il bromidrato d'arecolina nella terapia delle teniasi del cane.” 9, 685–687. [English & French summaries p. 687.]
- g. GALLO, C., 1955.—“L'echinococcosi e la distomatosi negli equini in Sicilia.” 9, 689–691. [English & French summaries pp. 690–691.]
- h. PIEROTTI, P., 1955.—“Indagini coprologiche per la diagnosi di distomatosi epatica ovina.” 9, 691–693. [English & French summaries p. 693.]

(518a) Faecal examinations of 40 sheep-dogs from the plain of Pisa after normal defaecation and after the administration of an anthelmintic against tapeworm revealed infections of *Dipylidium caninum*, *Taenia pisiformis*, *T. hydatigena*, *Multiceps multiceps*, *Mesocostoides lineatus*, *Echinococcus granulosus* (in one dog only), *Ancylostoma caninum*, *Toxocara canis*, *Toxascaris leonina* and *Trichuris vulpis*. M.MCK.

(518c) Nardi tabulates the parasitic diseases of sheep diagnosed at the Istituto Zooprofilattico Sperimentale at Foggia, Italy, during the five years 1950–54 and catalogues the species found in the various organs and tissues of the body of 150 apparently healthy sheep brought from Puglia for use at the institute [the percentages given are frequently based on very low figures]. M.MCK.

(518d) *Echinococcus granulosus* was present in 21 out of 150 dogs caught in Matera, Italy, and hydatids were found in 38 out of 150 cattle, 3 of 103 horses, 20 of 105 sheep, 3 of 110 pigs and none of 120 goats examined in the abattoir of Matera. M.MCK.



(518e) The electrophoretic diagram of the protein fraction of fluid from hydatid from cattle and sheep showed two components, one characterized by a fairly fast migration to the anion, which was comparable to that of albumins of the serum, and a second characterized by very slow migration to the anion. Whether the cyst had been recovered from the lung or liver did not seem to influence the qualitative nature of the fluid. The faster-moving component, in the case of hydatid from the sheep, showed faster migration towards the anion than that from cattle, but there was no essential quantitative difference in the components of the fluid from the two hosts.

M.MCK.

(518f) Sixty-seven dogs received arecoline hydrobromide in two doses of 0.02 gm. per kg. body-weight and 0.03 gm. per kg. given orally, six days apart, in a 5% solution with sodium benzoate. 23 dogs were already negative for parasites; eight passed their entire worm burdens, which consisted only of *Echinococcus granulosus*, after the first dose; one dog passed numerous *E. granulosus* but still retained specimens in the gut. In the remaining dogs, which had infections of *Dipylidium caninum*, *Mesocestoides lineatus* and/or *Taenia marginata*, the action of the drug was unreliable.

M.MCK.

(518g) Hydatid was present in 29.43% of the adult mules, horses and donkeys slaughtered at Palermo and in 13.24% of those slaughtered in Catania. The apparent rise in the incidences in these two places since the war is attributed to the fact that equines from the country are now being slaughtered, as well as from the town, to fulfil the demand for horse flesh. *Fasciola hepatica* infection was found only at Catania where less than 1% of the equines examined were infected.

M.MCK.

(518h) The faeces of 60 sheep with single or mixed infections of *Fasciola hepatica* or *Dicrocoelium dendriticum* and of 10 sheep apparently free of liver-flukes were examined by the concentration technique of Swanson & Hopper as modified by Rivera-Anaya & Martinez de Jesús [for details of the modification see Helm. Abs., 21, No. 17a]. That this technique provided an accurate estimate of the degree of infestation was confirmed in every case by examining the liver and draining the gall-bladder.

M.MCK.

### 519—Beiträge zur Klinischen Chirurgie.

- a. TRUSS, F., 1955.—“Über das Vorkommen von Taenien in Wurmfortsätzen.” 191 (2), 167–173.

(519a) Since 1900, twenty-four cases of cestode infection of the vermiform appendix have been recorded. Truss presents these in tabular form and discusses their significance. He also records, from the lumen of the appendix removed from a 32-year-old woman, a cestode segment one centimetre long: ova which were developing into oncospheres were also recovered.

A.E.F.

### 520—Biochimica et Biophysica Acta.

- a. BUEDING, E., ENTNER, N. & FARBER, E., 1955.—“Dissociation of the succinoxidase systems of *Ascaris lumbricoides* and of rat kidney.” 18 (2), 305–306.

(520a) It has already been shown that the succinoxidase system of *Ascaris lumbricoides* differs from that of mammalian tissues because transfer of electrons to atmospheric oxygen occurs without participation of the cytochrome system. Bueding *et al.* now describe the purification of the *Ascaris* succinoxidase and experiments which indicate that, through the action of lipase, the succinic dehydrogenase can be dissociated from its electron transporting system. Similar results were obtained with the succinic dehydrogenase system of rat kidney. They have also obtained evidence indicating that diphosphopyridine nucleotide and flavine adenine dinucleotide are constituents of the *Ascaris* succinoxidase complex. No metal requirement of the system has so far been detected.

S.W.

**521—Biologia. Lahore.**

- a. AKHTAR, S. A., 1955.—“A new spirurid (Nematoda: Acuariidae) from a hornbill.” 1 (1), 31-33.

(521a) *Dispharynx alata* n.sp. from a hornbill, *Tochus birostris*, at Lahore, differs from other species of the genus in that the alate left spicule is bidigitate and not pointed. As the cuticular cordons extend behind up to the middle of the first part of the oesophagus and the cervical papillae are tricuspid it can be further distinguished from the closely allied species *D. nastua* [nasuta] and *D. papilonis* [pipilonis]. R.T.L.

**522—Biological Bulletin.**

- a. HARGIS, Jr., W. J., 1955.—“Monogenetic trematodes of Gulf of Mexico fishes. Part I. The superfamily Gyrodactyloidea.” 108 (2), 125-137.  
 b. YOUNG, R. T., 1955.—“Tetrahynch (cestode) life histories.” [Abstract of paper presented at the Marine Biological Laboratory General Scientific Meetings, August 29 to September 1, 1955.] 109 (3), 354.  
 c. STUNKARD, H. W. & UZMANN, J. R., 1955.—“The killifish, *Fundulus heteroclitus*, second intermediate host of the trematode, *Ascocotyle (Phagicola) diminuta*.” 109 (3), 475-483.

(522a) Five species of monogenetic trematodes from fishes in the Gulf of Mexico are described and figured, viz., *Gyrodactylus funduli* n.sp. from *Fundulus similis* which differs from other species of the genus in the obliquely truncate shape of the anchor roots and the shape of the ventral bar which is thick and wide, with anteriorly directed truncate ends articulating with the ventro-mesial knobs of the anchors. *Gyrodactylus prolongis* n.sp. from *Fundulus grandis*, previously reported from *F. heteroclitus* as *Gyrodactylus* sp. by Linton, has an unusual skirt-like accessory holdfast on the peduncle, unusually long anchor hooks and a rectangular ventral shield. *Gyrodactylus* sp. from *Cyprinodon variegatus* differs from other species in the length and abrupt medial curvature of the anchor roots and the subtriangular shape of the ventral shield which projects posteriorly from the ventral bar. It is probably a new species but the material is insufficient to allow of a formal description. *Gyrodactylus stephanurus* Mueller, 1937 previously found on *Fundulus heteroclitus* and now reported from *F. grandis* is redescribed and figured. *Amphibdelloides narcine* n.sp. from *Narcine brasiliensis* is very closely related to *A. maccallumi* but the body is smaller, the vaginal pore sclerite, the accessory piece to the right is a slightly curved stout bar variously sculptured anteriorly and that to the left is widened posteriorly, constricted medially, its hook-shaped anterior end having a hole in its proximal protuberance through which the cirrus passes, and the anchor roots are more deeply cleft. R.T.L.

(522b) There are probably three stages in the life-cycle of a Tetrahynch but only the first in copepods and the third, in selachians, are known. The experimental transfer of these parasites from copepod to teleost awaits accomplishment. R.T.L.

(522c) Adults of *Ascocotyle (Phagicola) diminuta* have been reared experimentally by feeding gills of the killifish *Fundulus heteroclitus* containing encysted metacercariae to rats, mice, hamsters, gulls (*Larus argentatus*) and herons (*Nycticorax nycticorax*). The worms became sexually mature in three days and these are described and figured. Naturally infected herons have now been found in the Milford area. In 1924 Stunkard & Haviland divided the genus *Ascocotyle* into two subgenera *Ascocotyle* and *Parascocotyle* but since then a number of species have been described which bridge the differences between the subgenera. The status of *Phagicola*, which is still unsettled, is discussed. R.T.L.

**523—Boletim Fitossanitário. Rio de Janeiro.**

- a. FRANCO, E., 1955.—“Métodos de laboratório em nematologia.” Years 1952-55, 6 (1/2), 45-59.

(523a) Franco received instruction in nematological methods from Steiner and here presents a written account of this work. Numerous methods are dealt with briefly. J.B.G.



**524—Boletín Chileno de Parasitología.**

- a. NEGhme, A., RIVERA, G. F. & ALVAREZ, M., 1955.—“Algunas zoonosis parasitarias en perros vagos de la ciudad de Santiago.” 10 (4), 73–75. [English summary p. 73.]
- b. ATÍAS, A. & GAJARDO, R., 1955.—“Tricocefalosis infantil masiva.” 10 (4), 78–79. [English summary p. 78.]
- c. NAQUIRA, F., 1955.—“Cisticercosis múltiple.” 10 (4), 80–81. [English summary p. 80.]

(524a) Of 36 dogs caught wandering around the municipal abattoir in Santiago, Chile, 10 had *Echinococcus granulosus* and 26 had *Trichinella spiralis* infections. Of 1,008 dogs caught in the streets, only 45, or 4·6% were infected with *E. granulosus*; three out of 75 especially examined had *Trichinella spiralis*; *Dipylidium caninum* was present in 403, *Toxocara canis* in 154, *Ancylostoma caninum* in 339 and *Taenia hydatigena* and *T. pisiformis* in 118. M.MCK.

(524b) A five-year-old Chilean child with severe anaemia and bloody diarrhoea died after operation for intestinal obstruction. The autopsy revealed an iliocolic intussusception and the colon was packed with masses of *Trichuris trichiura*. M.MCK.

(524c) This is a case report of generalized cysticerciasis with multiple, painless, elastic, nodules under the skin of the temporal region, neck, thorax and abdomen. The complement fixation test was positive but there was no intradermal reaction with cysticercus or hydatid antigens. A cysticercus examined from a nodule in the biceps muscle did not apparently contain a scolex. M.MCK.

**525—Boletín de Información. Consejo General de Colegios Veterinarios de España.**

- a. TARAZONA VILAS, J. M., 1955.—“Estudios sobre los ciclos evolutivos y la terapéutica de las estrogilosis pulmonares ovinas.” Suplemento Científico, 9 (49), 271–301; (50), 345–362.

(525a) About 75% of the sheep more than four months old in the municipal abattoir of Barbastro, Huesca Province in Spain, were infected with *Dictyocaulus filaria*, *Cystocaulus ocreatus* and *Protostrongylus rufescens* which were the most frequent cause of the rejection of viscera. Larvae of *D. filaria* were reared in well slides and covered by a coverslip slightly raised from the slide to allow access to air. Water was supplied by capillary action along a string. *C. ocreatus* larvae were obtained experimentally in healthy *Helicella* (*Cernuella*) *variabilis* var. *suberis* and *Helix* (*Candidula*) *rugosiuscula*. Tarazona Vilas describes their larval stages and their rates of development. Detailed measurements are given of the first-stage larvae of *P. rufescens*. In Barbastro and Granada, lungworm larvae were present in *Helicella variabilis suberis*, *Helix rugosiuscula*, *Cochlicella conoidea*, *Euparypha pisana*, *Helicella* (*Helicella*) *ericetorum*, *Hygromia cinctella*, *Cepaea nemoralis* and *Eobania vermiculata*. After preliminary tests *in vitro* on *D. filaria* larvae, sheep with mixed infections were given (i) 5 c.c. of a 5% aqueous sodium fluoride solution injected tracheally which eliminated the worms in three of five sheep; (ii) a 2% cadmium iodide solution injected tracheally that proved ineffective and toxic; (iii) an intramuscular dose of 0·003 gm. of emetine hydrochloride per kg. body-weight in aqueous solution; this produced definite improvement in two of five animals and the *P. rufescens* infections disappeared; (iv) a 1:14 mixture of phenothiazine and common salt. After being given for ten days to six sheep this reduced the larvae of *D. filaria* in the faeces to 16%, those of *C. ocreatus* to 44% and those of *P. rufescens* to 65% of the pretreatment values. M.MCK.

**526—Boletín del Instituto de Investigaciones Veterinarias. Caracas.**

- a. VERGANI, F., 1955.—“Datos biológicos experimentales sobre el caracol *Limnaea* (*Galba*) *cubensis* P. 1911.” 7 (23), 34–55. [English summary p. 53.]

(526a) *Limnaea cubensis*, vector of *Fasciola hepatica* in Venezuela, survived up to 212 days in the laboratory. The eggs did not withstand drying but the adults, desiccated for 235 days, laid fertile eggs and their survival rate was 43%, showing that in the field the snails can survive the dry season. As some snails were observed to shelter in cracks in dry soil during the dry

season, treatment of infested waters is worth while only in winter. Aqueous solutions of sodium pentachlorophenate sprayed on *L. cubensis* in vitro were 100% lethal at concentrations of 800 p.p.m. upwards. This chemical killed all snails in rearing containers if a solution of 100 p.p.m. was sprayed at the rate of 1.5 c.c. per 10 sq. cm. When experimental land habitats were sprayed at the rate of 1.5 c.c. per 10 sq. cm., 24 hours before snails were introduced, the minimum lethal concentration was 500 p.p.m.

M.MCK.

### 527—Boletín Trimestral de Experimentación Agropecuaria. Lima.

- a. DOMINGO MÉNDEZ, E. & GAMERA DE LA TORRE, O., 1955.—“Nematodes y selecciones de algodón Tangüis.” 4 (3), 2-6.
- b. GARAYAR, H. N., 1955.—“Almacigos de café y el control de los nematodos.” 4 (4), 6-8.

(527a) Ten strains of Tangüis cotton were sown and fertilized on plots infected with nematodes in the Rímac Valley in Peru. The average numbers of nematode galls were relatively low and not significantly different (22 to 35 depending on the strain). Losses of up to 12% from wilt were caused by fungi which can gain entrance through nematode lesions. The highest yields were obtained from the LM 1041-49 and LMW 395-42 strains, which produced 4,590 kg. and 4,150 kg. of fibre respectively per “fanegada” [about 1.59 acres].

M.MCK.

(527b) Nematodes are one of the most dangerous pests of coffee plants in Peru. Only healthy nursery plants which have been reared on new ground should be used. *Crotalaria spectabilis* should be sown among the coffee plants and on badly attacked plantations all the coffee plants should be eliminated and replaced by citrus or other crops. The nematodes develop less on clay-like soils than sandy soils.

M.MCK.

### 528—British Journal of Pharmacology and Chemotherapy.

- a. ROGERS, W. P., CYMERMAN-CRAIG, J. & WARWICK, G. P., 1955.—“Chemical constitution and anthelmintic activity of cyclic analogues of phenothiazine.” 10 (3), 340-342.
- b. BANGHAM, D. R., 1955.—“Metabolism and excretion of <sup>14</sup>C-labelled diethylcarbamazine.” 10 (4), 397-405.
- c. BANGHAM, D. R., 1955.—“The mode of action of diethylcarbamazine investigated with <sup>14</sup>C-labelled drug.” 10 (4), 406-412.

(528a) Rogers *et al.* examined the anthelmintic activity of 23 tricyclic and two acyclic analogues of phenothiazine against mixed infestations of *Syphacia obvelata* and *Aspiculuris tetraptera* in mice. The results suggested that activity depended upon the presence of the central ring system containing an -NH group and a hetero-atom such as oxygen or sulphur possessing one or more “lone pairs” of electrons.

W.P.R.

(528b) Bangham has used diethylcarbamazine labelled with <sup>14</sup>C in an extensive study of the metabolism and excretion of this drug in rats and monkeys. The drug was given intravenously in doses of 2.0 mg. to 25 mg. per kg. body-weight. Within the first three hours 10% to 20% was excreted in the urine as unchanged drug. In 30 hours more than 95% had been excreted in the urine as compounds with an intact piperazine ring, 5% to 15% as diethylcarbamyloxy-piperazine, 2% to 5% as methylpiperazine, 1% to 6% as piperazine and at least 60% as a fourth metabolite which has not yet been identified, although infra-red spectrography suggests that it is similar to ethoxycarbonylpiperazine.

S.W.

(528c) Bangham describes the distribution of labelled diethylcarbamazine in the organs and tissues of rats and cotton-rats, the uptake of the drug by adults of *Litomosoides carinii* and microfilariae of *Dirofilaria immitis* and the action of the drug and its metabolites on microfilariae in the first few minutes after intravenous injection. No concentration above the average blood level was found constantly in any one organ or tissue and no significant concentration by leucocytes or erythrocytes was observed. *In vitro* adult *L. carinii* did not appear to take up the drug above the level in the medium and in microfilariae of *D. immitis* the concentration



was about one-third that of the medium. Diethylcarbamazine caused microfilariae of *L. carinii* to disappear rapidly from the blood as did diethylcarbamylpiperazine when given in larger doses; the unidentified fourth metabolite [see abstract No. 528b above] was also active but methyl piperazine had no effect. The significance of these findings is discussed. s.w.

# 529—British Journal of Surgery.

- a. PROBERT, W. R., 1955.—“Cholangiography in hepatic hydatid disease.” 43 (179), 308–309.

# 530—British Veterinary Journal.

- a. DAS, K. M. & SINGH, G. B., 1955.—“Calf ascariasis in India. A nine years' survey with special reference to 'hetrazan'.” 111 (8), 342–347.
- b. SENEVIRATNE, R. D. & KULASIRI, C., 1955.—“Arteriosclerosis of the aorta and pulmonary artery of an ox due to *Cysticercus bovis*.” 111 (9), 387–390.
- c. SOULSBY, E. J. L., 1955.—“Deaths in swans associated with trematode infection.” 111 (11), 498–500.
- d. PARNELL, I. W. & DUNN, A. M., 1955.—“Some observations on anthelmintic dosing of hill hogs in southern Scotland.” 111 (12), 519–530. [Statistical appendix by E. C. R. Reeve pp. 531–534.]

(530a) Observations have been made over a period of nine years on different aspects of ascariasis in cow and buffalo calves. 197 calves were treated with the following drugs: tetrachlorethylene followed by magnesium sulphate, tetrachlorethylene followed by 1:8 dihydroxyanthraquinone, tetrachlorethylene and liquid paraffin mixture, pods of *Scindapsus indica*, and hetrazan. Hetrazan was given at the rate of 6–12 mg. per kg. body-weight, three times a day in electuary for five to seven days. On the last two days of treatment a half dose of magnesium sulphate proved advantageous. Use of this drug reduced a mortality rate of from 85–100% to 4%. Although the dams did not show signs of clinical intestinal ascariasis, all the buffalo calves were clinically infected at birth, as well as some cow calves. The latter usually become infected after birth. D.M.

(530c) Large numbers of *Echinoparyphium recurvatum*, including many immature forms, caused emaciation, catarrhal enteritis and heavy mortality in mute swans on the river Axe in Somerset. This is the first record of this parasite in *Cygnus olor*. R.T.L.

(530d) Trials were carried out on hill-wintered hogs, to study the effect of dosing, during the autumn and winter, on worms burdens and changes in body and fleece weights. Two different control systems were used. Either the hogs of a heft were dosed, and then compared with another heft near by, or roughly half the hogs of the heft were dosed, and compared with the rest which were not. Insufficient trials were completed to decide definitely which anthelmintic at a given time of year gave the best results, but no significant difference was seen between the three anthelmintics used, nor between dosing three or four times over the winter months. The average net body-weight gain was  $3.56 \pm 0.56$  lb. after three to four doses, and the average fleece weight gain  $5.24 \pm 1.47$  oz. Probably these gains do not represent the maximum obtainable. The results are discussed in the light of Reeve's statistical analysis of the data in an appendix. D.M.

# 531—Bulletin of the Calcutta School of Tropical Medicine.

- a. CHOWDHURY, A. B., DASGUPTA, B., RAY, H. N. & BHADURI, N. V., 1955.—“Observations on the hexacanth embryo of *Taenia saginata* and its enclosing membranes.” 3 (3), 123–124.
- b. CHOWDHURY, A. B., DASGUPTA, B., RAY, H. N. & BHADURI, N. V., 1955.—“Observations on the cuticle of *Taenia saginata*.” 3 (3), 124.
- c. BHADURI, N. V. & CHOWDHURY, A. B., 1955.—“Ascariasis in children treated with piperazine syrup.” 3 (3), 128–129.
- d. BHADURI, N. V. & CHOWDHURY, A. B., 1955.—“Enterovioform in the treatment of oxyuriasis.” 3 (3), 129.
- e. RAY, H. N., 1955.—“Histochemistry in the study of parasites.” 3 (3), 142–143.
- f. CHOWDHURY, A. B., 1955.—“Histological and histochemical observations on *Taenia saginata*.” 3 (3), 143–144.

- g. BHADURI, N. V., 1955.—"Importance of histochemistry in the study of helminths." **3** (3), 144.
- h. CHOWDHURY, A. B., DASGUPTA, B., RAY, H. N. & BHADURI, N. V., 1955.—"Histochemical observations on the 'Innenkörper of Fülleborn' in microfilaria of *Wuchereria bancrofti*." **3** (4), 172.
- i. CHOWDHURY, A. B., DASGUPTA, B., RAY, H. N. & BHADURI, N. V., 1955.—"Observations on the vitellaria and early stage eggs of *Taenia saginata*." **3** (4), 172-173.
- j. CHOWDHURY, A. B., DASGUPTA, B., RAY, H. N. & BHADURI, N. V., 1955.—"Observations on the intestinal wall of *Ascaris lumbricoides*." **3** (4), 173.
- k. BHADURI, N. V. & CHOWDHURY, A. B., 1955.—"Piperazine in the treatment of enterobiasis." **3** (4), 180.
- l. BHADURI, N. V. & CHOWDHURY, A. B., 1955.—"Ascariasis in children treated with piperazine adipate." **3** (4), 180.
- m. BHADURI, N. V. & CHOWDHURY, A. B., 1955.—"Treatment of common intestinal helminthic infections of man." **3** (4), 185-188.
- n. CHOWDHURY, A. B., 1955.—"A case of dracunculosis." **3** (4), 190.

(531a) The hexacanth embryo from the uterus of *Taenia saginata* has an outermost covering enclosing yolk material, then a thick embryophore of numerous radially arranged wedge-shaped blocks and internal to this a lining membrane. The oncosphere within the embryophore contains the hexacanth embryo enclosed by the oncospherical membrane and an inner limiting membrane which is attached to the oncospherical membrane by a pedicle. The distribution of nucleic acids in the embryo, the oncospherical and limiting membranes was determined by Bracher's pyronin-methyl green stain and Feulgen's nucleal reaction, the distribution of simple proteins by Danielli's coupled tetrazonium reaction, and that of glycogen mucopolysaccharide and HAP by Hotchkiss' PAS reaction, the Bauer-Feulgen technique, Bracher's toluidine blue stain and the Hale method. The results indicate that the embryo contains the substances necessary for nutrition, energy-production and other activities involved in its growth.

R.T.L.

(531b) The cuticle of *Taenia saginata*, which rests directly on the mesenchyme, consists of an outer fringe-like conidial layer, a homogeneous thick layer and a basement layer. The results of various histochemical tests are recorded. From these it is concluded that the cuticle plays an important role in nutrition in addition to its protective function.

R.T.L.

(531c) Diethylcarbamazine given thrice daily for seven days as a syrup to 55 patients at dosage of 6 mg. per kg. body-weight expelled adult *Ascaris* worms, in varying numbers, from almost all the patients treated and in 35 of the cases which were followed up the absolute cure rate was 28.5%.

R.T.L.

(531d) Seventy-seven cases of *Enterobius* infection were treated with Enterovioform tablets (iodochlorhydroxyquinoline containing 40% iodine). The total dose was 20 to 40 tablets for adults and 5 to 20 for children spread over 5 to 10 days in divided doses daily. 14 of the 22 patients, who were adequately followed up were completely cured.

R.T.L.

(531e) Histochemical techniques now being used in the study of the cytochemical make-up of helminths and protozoan parasites and of their environmental tissues include the Feulgen technique for the localization of desoxyribonucleic acid (DNA) in a cell, Unna-Pappenheim's pyronin-methyl green stain for the detection of ribonucleic acid (RNA) in tissue by red colouration, Gomori's method for phosphatases, periodic acid-Schiff reaction for polysaccharides and Lison's toluidine blue method for mucopolysaccharides. The interference microscope can be used to measure small phase changes in a cell and enable the dry-mass and refractive indices of cells and other microscopical bodies to be calculated.

R.T.L.

(531f) From histochemical studies of living proglottides of *Taenia saginata* it was found that the sperm head contained a conspicuous amount of DNA and the tail a fair amount of RNA, while alkaline phosphatase activity, glycogen, hyaluronic acid type polysaccharide and simple proteins were determined and localized in various components of the male reproductive



system. There was an unknown brown pigment inside the testes and in the wall of the vas deferens in the form of scattered granules, beaded or filamentous structures or irregular masses. In its early stage the ovum contained intensely pyroninophilic intra-cytoplasmic bodies containing a certain amount of DNA of low polymer, glycogen and HAP. The cells of the hexacanth embryo were very rich in nucleic acid and areas of alkaline phosphatase activity were detected in the embryo and its enclosing membranes. The body-wall showed intense alkaline phosphatase activity, which varied over different parts of the surface, and the presence of polysaccharide, glycogen and HAP, simple proteins and lipids. The calcareous corpuscles in the parenchyme mostly contained variable amounts of RNA and some an appreciable quantity of DNA, glycogen, HAP, and mucopolysaccharides and simple proteins and definite alkaline phosphatase activity. Various functions for these corpuscles are suggested. R.T.L.

(531g) This brief note stresses the importance of histochemistry as revealed in the preceding article by Chowdhury. R.T.L.

(531h) The central body in the microfilaria of *Wuchereria bancrofti* is strongly pyroninophilic, very rich in polysaccharide and the site of intense alkaline phosphatase activity but no evidence of DNA or HAP and insignificant amounts of lipids could be detected. The reactions suggest that this body is a storehouse of some nutritive material but its true function requires further study. R.T.L.

(531i) Histological observations and histochemical tests made on the vitellaria and on the eggs of *Taenia saginata* from the ovaries and uterus of living proglottides indicate that the constituents of the vitelline cells and the early stage egg though not histochemically identical are histologically very similar. R.T.L.

(531j) The intestinal wall of *Ascaris lumbricoides* revealed the presence of RNA, glycogen, polysaccharide and alkaline phosphatase activity in the rod border of the epithelial cells and the basement membrane and of glycogen and alkaline phosphatase activity in the intra-cytoplasmic granular inclusions in the epithelial cells. The results support Hyman's suggestion that the intestinal wall may engage in intracellular digestion as well as absorption of products of digestion. R.T.L.

(531k) Fourteen out of nineteen cases of enterobiasis which had been followed up after treatment were cured by piperazine tablets given at the dosage of 50 mg. per kg. body-weight in divided doses daily after food for seven successive days. Unguentum hydrargyrum ammoniata was applied nightly to the peri-anal region during treatment and for four weeks thereafter to prevent reinfection. R.T.L.

(531l) Piperazine adipate was administered to 28 children, aged one-and-a-half to ten years, in the dosage of 150 mg. to 600 mg. twice daily after food for four days. Of the 14 cases which were subsequently followed up six had been absolutely cured after a single course of treatment. R.T.L.

(531m) The dose and mode of administration of the chief anthelmintics now used in the treatment of hookworm, roundworm, threadworm, tapeworm and fluke infections in man are succinctly summarized. R.T.L.

(531n) This brief account of a case of dracontiasis is of interest as the patient had always resided in a village in the district of Hooghly, situated in West Bengal where guinea worm is not known to occur. R.T.L.

**532—Bulletin of Endemic Diseases. Baghdad.**

- a. BAILEY, V. M., 1955.—“Notes of the incidence of human parasites in Samawa, Iraq.” 1 (3), 250-252.
- b. WAJDI, N., 1955.—“A quantitative survey of *Bulinus* snails in the winter season.” 1 (3), 257-264.

(532a) Bailey records that the incidence of ascariasis in the Samawa area in Iraq appears to be higher, and that of ancylostomiasis lower, than previously reported. Of 497 faecal specimens examined 26.8% were positive for *Ascaris* and 9.5% for *Ancylostoma*, compared with 2% and 41% respectively which were the figures given by the Government for 1951. The possible reasons for these differences are discussed. Of 1,511 urine samples examined 6.4% were positive for *Schistosoma haematobium*. S.W.

(532b) From an oecological survey of canals in south and central Iraq, Wajdi has shown that there is a second peak in the reproductive cycle of *Bulinus* sp. There is a gradual rise in numbers during December, January and February followed by a very marked, sudden increase in March. Data on the locality of the canals, the dates visited, their width, depth and length, the velocity of the current, nature of the bed, flora, number of *Bulinus* per 100 dips, air and water temperature etc. are given in tabular and graphic form. S.W.

**533—Bulletins et Mémoires de la Société Médicale des Hôpitaux de Paris.**

- a. YENER, M. S., 1955.—“Un cas de kyste hydatique siégeant aux deux bases pulmonaires.” 4e Série, 71 (7/8), 243-245.
- b. GROSSIORD, A., PECKER, J. & BITRY-BOELY, C., 1955.—“Hydatidose vésiculaire de la queue de cheval.” 4e Série, 71 (7/8), 289-294.

**534—Bulletin of the Nevada Agricultural Experiment Station.**

- a. SMITH, O. F., 1955.—“Breeding alfalfa for resistance to bacterial wilt and the stem nematode.” No. 188, 15 pp.

(534a) Any variety of lucerne bred for resistance to stem nematode should also be resistant to bacterial wilt since both pathogens occur together. Nemastan was used as the main source of resistant plants and a variety Lahontan was developed by the polycross method of breeding. Lahontan is almost immune to stem nematode and is more resistant to bacterial wilt than Ranger. In Nevada, Lahontan crops as well as Ranger even in areas with no stem nematode and its seed production is satisfactory. J.B.G.

**535—Bulletin de l'Office International des Épidémiologies.**

- a. SÁNCHEZ BOTIJA, R., 1955.—“Sur la présence de la schistosomiase ovine en Espagne.” 43 (3/4), 433-434.
- b. DISSAMARN, R., 1955.—“La douve du foie, du boeuf et du buffle, en Thaïlande.” 43 (3/4), 435-438.
- c. SAITO, K. & NAKAMURA, J., 1955.—“Situation actuelle de la distomatose au Japon.” 43 (3/4), 439-441.
- d. MERLE, A., 1955.—“Enquête sur l'échinococcose, données statistiques.” 44, 396-407.

(535a) *Schistosoma bovis*, hitherto unknown in Spain, was present in 800 out of 1,240 sheep in “El Bohodón” locality of Avila. The parasites were found in the portal, mesenteric, gastro-epiploic and splenic veins. There were large numbers of eggs causing enteritis in the abomasum and large intestine. The ponds and drinking places which contain many planorbidids were drained and treated with calcium oxide. The condition of some of the infected sheep was greatly improved by intramuscular injections of tartar emetic. R.T.L.

(535b) During 1949-53 the livers of 1.05% of 121,019 bovines slaughtered in the abattoir at Bangolem, Bangkok Province and 6.9% of 29,421 buffaloes were condemned owing to cirrhosis due to liver-fluke. The beef cattle came chiefly from the southern and north-eastern regions and the buffaloes chiefly from the central and north-eastern regions. *Fasciola*



*hepatica* and *F. gigantea* both occur in bovines in Thailand. The intermediate hosts have not yet been identified.

R.T.L.

(535c) Fascioliasis is wide-spread in cattle and sheep in Japan and causes heavy economic losses estimated at about ten thousand million yens annually. In 1953 of over 200,000 head of cattle in the most heavily infected areas an average of 40% was found to be infected and 25,000 were treated.

R.T.L.

(535d) Merle brings together statistical information received by "l'Office International des Epizooties" from various countries of the world on the incidence of hydatidosis in man and in domesticated animals and on the occurrence of *Echinococcus granulosus* in the dog.

R.T.L.

### 536—Bulletin de la Société Neuchâteloise des Sciences Naturelles.

- a. BAER, J. G., 1955.—"Cestodes d'un dauphin de l'Océan Pacifique." 78, 33-36.
- b. BAER, J. G. & FAIN, A., 1955.—"Les cestodes des pangolins." 78, 37-52.
- c. DUBOIS, G., 1955.—"Révision du genre *Parastrigea* Szidat 1928 (Trematoda: Strigeidae) et description de deux espèces nouvelles." 78, 53-65. [English & German summaries p. 64.]
- d. DUBOIS, G., 1955.—"*Notocotylus solitaria* Singh, un second synonyme de *N. babai* Bhalerao." 78, 67-69.
- e. EUZET, L., 1955.—"Larves gyrodactyloïdes nageantes de quelques trématodes monogénétiques de poissons marins." 78, 71-79.

(536a) The descriptions of *Strobilocephalus triangularis* (Diesing, 1850) published hitherto have been based on the only two known specimens which are poorly preserved. Baer is now able to amplify and make more precise his earlier description from examination of a very well preserved specimen from the rectum of a dolphin from the coast of the Marshall Islands. The scolex is extremely large, measuring 7 mm. in diameter, and is deeply embedded in the rectal wall producing a swelling 9 mm. in diameter which is clearly visible on the peritoneal surface of the intestine. The cyst wall is formed exclusively by the muscularis mucosae. The whole surface of the scolex is covered with tiny spines. The musculature of the vagina is described in detail; mature eggs, observed for the first time in this specimen, measured  $79\mu$  in diameter with the embryophore  $34\mu$  by  $29\mu$  and the oncosphere  $23\mu$  in diameter. Several specimens of *Tetrabothrius forsteri* were present in the same collection.

s.w.

(536b) Baer & Fain describe six cestodes from pangolins of which all but *Raillietina* (*Paroniella*) *contorta* are new, one representing a new genus of the Davaineinae. *R. (P.) contorta* and *R. (P.) boviensis* n.sp. occur in Asiatic pangolins, both being found in *Manis* (*Paramanis*) *javanica* in Java and the former having been originally described from *Manis* (*Manis*) *crassicaudata* in Ceylon. Both these possess a scolex with a rostellum armed with typical hooks in a double crown, 130 to 160 (length  $8-9\mu$ ) in *R. contorta* and 120 (length  $15-17\mu$ ) in *R. boviensis*; in the latter the musculature is slightly less well developed and there are about 15 small testes arranged in two groups whereas in the former there are two large testes; in both each uterine capsule in the gravid segments contains one egg. *R. (R.) anoplocephaloides* n.sp., *Metadavainea aelleni* n.g., n.sp., *R. (R.) rahmi* n.sp. and *Hymenolepis manidis* n.sp. are from African pangolins, the first and second occurring in *Manis* (*Phataginus*) *tricuspidis* and *M. (Smutsia)* *gigantea*, the third in *M. (P.) tricuspidis* and the fourth in *M. (S.) gigantea*. *R. (R.) anoplocephaloides* has lost all trace of hooks, the rostellum is much reduced and there are four testes per segment. *Metadavainea aelleni* has a double crown of 18 very large hooks which are nevertheless typically davaineid in form. *R. (R.) rahmi* lacked hooks, but this was probably due to the poor state of preservation of the specimens, and had only two testes per segment. In the African species the eggs in the gravid segments are in groups in parenchymatous capsules. *Hymenolepis manidis* morphologically is almost indistinguishable from *H. fraterna* but is distinguished on the grounds of host and distribution; the fact that ants and termites have not been implicated as intermediaries for *H. nana* together with the fact that pangolins are not found near human habitations separate it from this species.

s.w.

(536c) Dubois gives a brief historical account of *Parastrigea*, redefines the genus and provides a key to its 11 species, transfers *Apharyngostrigea flexilis* to it as a new combination and describes and illustrates two new species from the Belgian Congo. *P. astridae* n.sp. was collected from the intestine of *Tyto alba affinis*; it is 4.8 mm. to 7.7 mm. long, the testes are multilobulate, the second half or three-quarters of the anterior segment is dilated ventrally forming a collar ending in two dorsal expansions, the genital cone measures 600–620  $\mu$  by 400–570  $\mu$  and the eggs are numerous and measure 127–138  $\mu$  by 73–75  $\mu$ . *P. faini* n.sp. occurred in the intestine of *Buteo rufofuscus augur*; it measures up to 3.8 mm. in length and is characterized by the comparatively enormous size of the copulatory bursa which is distinctly delimited and has almost the same measurements as the anterior segment, the mean length and breadth being 964  $\mu$  and 833  $\mu$  respectively compared with 1053  $\mu$  and 875  $\mu$ . S.W.

(536d) Dubois has examined the type specimen of *Notocotylus solitaria*, which was described as a new species by Singh in 1954 from a single specimen found in the caecum of *Anas acuta*, and concludes that it is a synonym of *N. babai* Bhalerao, 1935. *N. indicus* Lal, 1935 has already been shown to be synonymous with *N. babai*. S.W.

(536e) There are few published descriptions of the free-swimming larvae of monogenetic trematodes of marine fish. Euzet has collected eggs of *Hexostoma thynni*, *Neorpcotyle catenulata*, *Axine belones* and *Microcotyle chrysophrii*, cultured them in sea water and describes and illustrates the eggs and larvae and the form of the larval hooks. He discusses the progressive complexity of the armature of the adhesive disc and suggests that, in order of increasing complexity, these genera form the series *Neorpcotyle*, *Hexostoma*, and *Axine* and *Microcotyle*. S.W.

### 537—Bulletin de la Société des Sciences Vétérinaires et de Médecine Comparée de Lyon.

- a. EUZÉBY, J., 1955.—“Réunion mixte O.I.E.—F.A.O. sur les parasitoses animales dans les pays méditerranéens (Rome, 4–7 novembre 1954).” 57, 93–96. [Discussion p. 96.]

### 538—Bulletin de la Société Zoologique de France.

- a. LE-VAN NHAM, 1955.—“Un cas de *Filaria (Loa) loa* sous-conjonctivale.” 80 (1), 74–76.
- b. BAER, J. G., 1955.—“Incidence de la spécificité parasitaire sur la taxinomie. Problèmes d'évolution chez les cestodes cyclophyllidiens.” 80 (4), 275–287.
- c. CHABAUD, A. G., 1955.—“Remarques sur la symétrie céphalique des nématodes et hypothèses concernant l'évolution de cette symétrie chez les phasmiidiens parasites.” 80 (5/6), 314–323.

(538b) In this examination of specificity in the cyclophyllidean cestodes and its significance in taxonomy, Baer draws on his extensive knowledge of the group and on the literature. He discusses the extreme physiological specialization of these tapeworms and their restriction to particular groups of hosts. The development of the doubling of the genitalia is described using as paired examples *Paranoplocephala* (simple) and *Cittotaenia* (double), *Andrya* (simple) and *Diandrya* (double), all four parasitic in rodents, *Prototaenia* and *Progamotaenia* in marsupials, *Hemiparona* and *Parona* in parrots, *Davainea* and *Cotugnia* in gallinaceous birds, *Hymenolepis* and *Diplogynia* in ducks, *Acoleus* and *Diplophallus* in waders and *Oochoristica* and *Pancerina* in lizards. Difficult to place in the classification is the genus *Jardugia* with its one species *paradoxa*, in which the anatomy of the anterior proglottides is that of *Hymenolepis*, of the middle that of *Diploposthe* and of the posterior that of *Diplogynia*. Other examples of specificity are given including the cestodes of pangolins [of which a detailed account appears in *Bull. Soc. neuchatel. Sci. nat.*, for abstract see No. 536b above]. In conclusion Baer emphasizes the importance of including information on the host in descriptions of and taxonomic work on cestodes. S.W.

(538c) Chabaud discusses the theories of de Coninck and of Chitwood & Wehr of the evolution of the cephalic symmetry of phasmid nematodes. Although at first that of de Coninck



appears to be the more satisfactory, he is convinced that the tri-radiate symmetry postulated by Chitwood & Wehr is the truly primitive form and this corresponds with the observed cephalic innervation. He describes and illustrates diagrammatically his theory of the evolution from the primitive tri-radiate arrangement by (i) condensation of the labia along certain axes, characteristic for each order, e.g. the latero-ventral and dorsal axes in the Rhabditida and the dorsal and ventral axes in the Spirurida, and (ii) the atrophy of the apical part and, possibly, the intrabuccal invagination of these axes which, in turn, is compensated by the forward movement of the opposing axes and the superficial tissues of the post-labial region. S.W.

#### 539—Bulletin of the Southern California Academy of Sciences.

- a. MARTIN, W. E., 1955.—“*Stictodora caballeroi* new species (Trematoda: Heterophyidae).” 54 (3), 161–165.

(539a) *Stictodora caballeroi* n.sp., from the ring-billed gull, *Larus delawarensis*, in Southern California, closely resembles *S. japonica* but the gonotyl is armed with a semicircle of about 64 to 89 spines. It differs from *S. lari* in having a larger oral sucker, larger gonotyl and fewer gonotyl spines. The ovary is between, not anterior to, the testes. It also differs from *S. mergi* in the larger size of the body, larger oral sucker, larger gonotyl with fewer spines and smaller eggs. R.T.L.

#### 540—Bulletin of the World Health Organization.

- a. GAUD, J., 1955.—“Les bilharzioses en Afrique occidentale et en Afrique centrale.” 13 (2), 209–258. [English summary p. 238.]  
b. GAUD, J., 1955.—“Les bilharzioses à Madagascar et aux îles Mascareignes.” 13 (2), 259–288. [English summary p. 281.]

(540a) Gaud summarizes our present knowledge of schistosomiasis in French West Africa and Central Africa and reports on a survey carried out in 1950. Physical and geographical factors appear to have little or no effect on the spread of the diseases, the main factors being the migrations of populations, the concentration of communities around water-holes and the introduction of new methods of farming and industry, especially rice-growing and fish-farming. The snail hosts are present in areas where the diseases are not yet known to exist but the potential danger of their spreading is great. The social importance is discussed and various prophylactic and control methods described. The paper itself is illustrated by a number of maps and tables and a number of annexes give, in tabular form, statistical data for different areas on the morbidity, indices of human infection and localizations of the intermediaries. S.W.

(540b) Gaud has made a survey of schistosomiasis in Madagascar, Réunion and Mauritius. In Madagascar it does not appear to be a major health problem. Two-fifths of the island are free from both intestinal and urinary schistosomiasis; the latter is very common along the west coast and the former in the southern half of the east coast and on the south of the inland plateau. Réunion is apparently quite free from either form. In Mauritius schistosomiasis haematobia only is present and does not constitute a serious health problem. General aspects, including prophylaxis and the distribution of the intermediaries, are discussed. Statistical data on the indices of human infection and distribution of the vectors are given in two annexes to the paper. S.W.

#### 541—Bulletin. Wyoming Game and Fish Commission.

- a. LANDRAM, J. F. & HONESS, R. F., 1955.—“Some internal parasites of the mule deer *Odocoileus hemionus hemionus* in Wyoming.” No. 8, pp. 13–22.

(541a) The eleven helminth species found in the mule deer *Odocoileus hemionus hemionus* in Wyoming and their distribution by counties are briefly annotated. New records for this host are *Thysanosoma actinioides*, *Moniezia benedini*, *Trichostrongylus colubriformis*, *Ostertagia*

(*O. ostertagi*, *O. (O.) circumcincta* and *O. (O.) orloffi*. *Moniezia expansa*, *O. (O.) trifurcata* and *O. (O.) orloffi* are new records for North America. Examination of the type of *O. bellae* Landram, 1951 showed that this is a synonym of *O. (O.) orloffi* for which domestic cattle are also recorded as new hosts. Three other species are listed from the literature, viz., *Cysticercus tenuicollis*, *O. (Grosspiculagia) occidentalis* and *O. (Marshallagia) marshalli*. R.T.L.

#### 542—California Veterinarian.

- a. REDDICK, Jr., H. E., 1955.—“New formula in worming cattle.” 8 (7), 19, 36.

(542a) The undesirable flavour of phenothiazine was overcome when three parts of the drug were combined, in a granular form, with one part of Carob flour. The granules containing the usual therapeutic dose of phenothiazine proved effective in the treatment of stomach worms in cattle. The Carob flour prevents the absorption of the phenothiazine to a great extent and thus increases the margin of safety, while the increased palatability renders the treatment of large numbers of cattle extremely easy. R.T.L.

#### 543—Časopis Lékařů Českých.

- a. HAVEL, A., 1955.—“Terénní hodnocení oxyuriase systémem zamořenosti.” 94 (46), 1239–1241.

(543a) Havel describes a method of estimating the intensity of infestation with *Enterobius vermicularis* in a given locality. The infestation is expressed in percentages. For this purpose the index of infestation of all individuals in the area is found by using Schüffner's method. The range of individual index varies from 1 to 15 depending on the number of eggs found per smear (1–2 eggs = individual index 1, and 35 eggs and more = individual index 15). From the indices of individual infestations the author compiles an index of infestation of an area by adding all the individual indices, multiplying the sum of indices by 100 and dividing by the number of individuals under investigation. In the author's opinion an index up to 99% represents a slight degree of infestation, 100–199% is one of medium degree, 200–299% is a severe and over 300% is a very severe infestation. C.R.

#### 544—Central African Journal of Medicine.

- a. YOUNG, C. N., 1955.—“Parasitic infection on a tobacco farm in the Umvukwes district.” 1 (6), 288.  
b. WOODMAN, H., 1955.—“African filariasis.” 1 (6), 289–294.

(544a) As a physical check-up and a microscopical examination of the faeces and urine of 80 African male labourers employed on a farm in the Umvukwes district, Southern Rhodesia showed a high incidence of parasitism without a corresponding degree of sickness, it is concluded that the indigenous population develops a certain immunity to schistosome, hookworm and amoebic infections. R.T.L.

(544b) Woodman summarizes his own and other recent publications on human filarial infections and their vectors in Africa, viz., *Wuchereria bancrofti*, *Onchocerca volvulus*, *Loa loa* and *Acanthocheilonema perstans*. R.T.L.

#### 545—Československá Hygiena, Epidemiologie, Mikrobiologie, Imunologie.

- a. LYSEK, H., 1955.—“Vyšetřování geohelminthos s hlediska hygienicko-epidemiologického ve Šternberku na Moravě.” 4 (6), 317–322. [English & Russian summaries p. 321.]  
b. NAUŠ, A., ODCHÁZELOVÁ, E. & UHROVÁ, J., 1955.—“Oxyuriasis u školních dětí.” 4 (7), 377–380.

(545a) Examination of eleven soil samples from Šternberk, a town largely without sewerage, disclosed heavy contamination with helminth eggs of human origin and eggs potentially infective to man. Greater attention should therefore be given to the study and control of geohelminths. G.I.P.



(545b) The authors, having investigated the occurrence of *Enterobius* infection in 484 children attending a school in Prague, tabulate the incidence for each class and the results of faecal examinations made, three times monthly, for the four months during which an educational campaign was conducted among the children and their parents. G.I.P.

#### 546—Československá Parasitologie.

- a. ČERVA, L., 1955.—“Výsledky koprologického vyšetřování dětských domovů Pražského kraje.” [Intestinal parasites in children from homes in the Prague district.] 2, 22–34. [English & Russian summaries p. 33.]
- b. ERHARDOVÁ, B., 1955.—“Příspěvek k poznání motolic u *Microtus oeconomus mähelyi* (Rodentia, Muridae).” [Trematodes from *Microtus oeconomus mähelyi* (Rodentia, Muridae).] 2, 38–40. [German & Russian summaries pp. 39–40.]
- c. ERHARDOVÁ, B. & KOTRLÝ, A., 1955.—“Cizopasní červi zažívacího ústrojí našich volně žijících přežvýkavců.” [Intestinal helminths of wild ruminants.] 2, 41–68. [German & Russian summaries p. 67.]
- d. ERHARDOVÁ, B. & RYŠAVÝ, B., 1955.—“K otázce kvantitativních koprologických vyšetřovacích metod v helmintologii.” [Quantitative coprological methods in helminthology.] 2, 69–74. [Russian summary p. 73.]
- e. CHALUPSKÝ, J., 1955.—“Parasitující červi v mražených a uzených mořských rybách.” [Parasitic nematodes in marine fish.] 2, 83–88. [English & Russian summaries p. 87.]
- f. JÍRA, J., 1955.—“Nálezy fytonematodů jako pseudoparasitů ve stolici člověka a některé otázky pseudoparasitismu.” [The occurrence of phytonematodes as pseudoparasites in the stools of man and some problems of pseudoparasitism.] 2, 89–94. [English & Russian summaries pp. 92–93.]
- g. LUCKÝ, Z., 1955.—“Nález vajíček hlístice *Hepaticola petruschewskii* (Šulman, 1948) v játrech lina z povodí Dyje.” [*Hepaticola petruschewskii* eggs in the liver of *Tinca tinca* from the basin of river Dyje.] 2, 99–101. [German & Russian summaries p. 101.]
- h. LUCKÝ, Z., 1955.—“Metacerkarie *Neascus cuticola* (Nordman, 1832) cizopasník perlinů na jižní Moravě.” [*Neascus cuticola* parasitic in *Scardinius erythrophthalmus* in South Moravia.] 2, 102–104. [German & Russian summaries p. 104.]
- i. VOŠTA, J., 1955.—“Výskyt střevních parazitů u dětí na Tábořsku.” [Intestinal parasites of children in the Tábor area.] 2, 177–180. [German summary p. 180.]
- j. WEISER, J. & KÖHLER, W., 1955.—“Hlístice (Nematoda) jako cizopasníci larev ploskohřbetky, *Acantholyda nemoralis* Thoms. v Polsku.” [Nematodes parasitic in *Acantholyda nemoralis* Thoms. in Poland.] 2, 185–190. [German summary p. 190.]
- k. ZAVADIL, R., 1955.—“Druhové znaky a rozšíření cizopasníků *Syngamus trachea* a *Syngamus (Ornithogamus) merulae*.“ [Specific characters and distribution of *Syngamus trachea* and *S. (Ornithogamus) merulae*.] 2, 201–209. [German & Russian summaries p. 209.]

(546a) The helminth infections found by faecal examination of 536 inmates of institutions for children in the Prague area were *Hymenolepis nana* in 5%, *Trichuris trichiura* in 3.5% and *Ascaris lumbricoides* in 0.7%, while 2% of 85 adults from the staff were infected with *H. nana*. G.I.P.

(546b) From South Slovakia *Plagiorchis muris* and *Notocotylus noyeri* are reported in a new host *Microtus oeconomus mähelyi*. G.I.P.

(546c) Short descriptions are given of 34 intestinal helminths recorded, during a four-year survey, from *Cervus elaphus*, *Capreolus capreolus*, *Ovis musimon* and *Dama dama* in Czechoslovakia. Nine species were new for the country; *Oesophagostomum radiatum*, *Trichostrongylus minor* and *Muflonagia podjapolskyi* are reported for the first time from *C. capreolus*, and *Spiculopteragia schulzi* and *T. capricola* from *D. dama*. Numerous faecal samples from different districts showed that the most frequent were *Ostertagia* spp. (20%), *Chabertia ovina* (15%) and *Haemonchus contortus*. G.I.P.

(546d) Finding that the number of helminth eggs passing with the faeces of two rams varied in the course of the day without any regularity, the authors examined every pellet of all the faeces passed during two days for the distribution of eggs and larvae. A typical result of the minimum and maximum number in a 0.71 gm. pellet was 20 and 348 eggs of intestinal worms, none and 26 larvae of *Protostrongylus*, none and 3 of *Dictyocaulus*, and 6 and 125 of

*Muellerius*. Thus coprological examination is useless as a quantitative method, while qualitative results should be treated with reserve, particularly when only one to three samples are used. A further experiment showed that careful mixing of the faeces, as advised for all coprological methods, did not result in an even distribution of eggs. G.I.P.

(546e) Two lots of ten frozen herrings (*Clupea harengus*) were examined and 90% and 60% respectively found infected with larval *Pseudanisakis rotundata*. Smoked herrings were also found to be infected. Marine fish (probably cod) pickled in a barrel were infected with *Porrocaecum* larvae. Although these nematodes are probably harmless to man, their presence lowers the value of the fish. G.I.P.

(546f) Plant nematode eggs, with thin membranes and at various stages of development, which are illustrated by nine photomicrographs, were present in seven out of 2,500 stool samples from kitchen and food store personnel in various parts of Czechoslovakia but repeated examination was always negative. The presence of these eggs, although not of medical importance, may lead to erroneous diagnosis. The problems of pseudoparasitism are discussed. G.I.P.

(546g) Eggs of *Hepaticola petruschewskii* were found in the liver of a *Tinca tinca* from the River Dyje (Thaya), in Czechoslovakia. No mature worms were present. G.I.P.

(546h) Metacercariae of *Neascus cuticola* are recorded, for the first time, in the skin of *Scardinius erythrophthalmus* obtained from the River Dyje in South Moravia. G.I.P.

(546i) In the Tábor area, of 3,000 children 2 to 13 years old examined for worms, *Enterobius* was found in 68.2%, *Trichuris* in 0.5%, *Ascaris* in 0.5%, *Trichostrongylus* sp. in three children, *Taenia saginata* in one and *Hymenolepis nana* in one weak child. Weak children were more heavily infected, i.e. 79% with *Enterobius*, 20.8% with *Ascaris* and 36.4% with *Trichuris*. G.I.P.

(546j) Larvae and adults of *Neoaplectana janickii* were found in 42% of overwintered larvae of *Acantholyda nemoralis* from the forest area of Dabrowa Opolska in Silesia. The following characters distinguish *N. janickii* from all known species of this genus. The females are 1.5 mm. long with a pointed tail and the males are 1.2 mm. long with rounded tails terminating in a hair; the oesophagus is 177  $\mu$  long. There are four pairs of genital papillae and the spicules are bent over, are without a hook and measure 42  $\mu$ . The gubernaculum is 24  $\mu$  long. Rhabditoid larvae are 600  $\mu$  to 1,000  $\mu$  in length. G.I.P.

(546k) Zavdil gives detailed comparative data on the structure and distribution of *Syngamus trachea* and *S. merulae*, using Rizhikov's classification of the genus. *S. merulae* is reported for the first time for Czechoslovakia. At Brno the gapeworm incidence in blackbirds was 53% in the summer of 1953. This rose to 100% in the young birds hatched the following year and by autumn the general infection in birds fell to 7%. G.I.P.

#### 547—Chinese Medical Journal. Peking.

- a. CHUNG, H. L., WENG, H. C., HOU, T. C. & HO, L. Y., 1955.—"Cross intradermal reactions of patients with paragonimiasis, clonorchiasis and schistosomiasis to different trematode antigens and their clinical significance." 73 (5), 368-378.
- b. HSU, P. K., 1955.—"A preliminary study on the morphology and bionomics of *Oncomelania* snails in Kwangtung Province." 73 (6), 477-492.

(547a) Chung *et al.* subjected 29 individuals to intradermal tests with four different antigens, prepared from adults of *Paragonimus westermanii*, *Clonorchis sinensis*, *Fasciola hepatica* and *Schistosoma japonicum*, and a saline control fluid. Of the 29 tested, 18 suffered from paragonimiasis, two from clonorchiasis, three from schistosomiasis and one from kala-azar; the remaining five were normal. All paragonimiasis patients were positive to the *Paragonimus*,



*Clonorchis* and *Fasciola* antigens and six, but less strongly, to the *S. japonicum* antigen. Of the two with clonorchiasis both were positive to the *Clonorchis* and *Fasciola* antigens, one was negative to the *Paragonimus* antigen and both were negative to the schistosome antigen. The three schistosomiasis patients were all positive to all four antigens. The normal persons and the one with kala-azar were all negative to all four antigens. The authors discuss these cross reactions, their immunological significance and the diagnostic value. s.w.

(547b) From a detailed study of the morphology of oncomelanid snails collected from various localities in Kwangtung Province, Hsu concludes that, in spite of great variations in the characters of the shell, they all belong to the species *Oncomelania hupensis*. He describes the oecology, life-history and bionomics of the snail and suggests that its control could be effected by building dykes to prevent flooding in the rainy season. This would also enable the land to be cultivated. s.w.

#### 548—Chinese Medical Journal. Taipei.

- a. FAN, P. C. & HSU, J., 1955.—“Filariasis in Free China. Part II. Incidence in Taiwan Chinese.” **2** (3/4), 151-164. [Chinese summary p. 164.]
- b. FAN, P. C., HSU, J. & LIU, J. C., 1955.—“Studies on oxyuriasis. II. Two new types of perianal swab for oxyuriasis survey, comparison of results with NIH cellophane swab.” **2** (3/4), 183-195.

(548a) The incidence of bancroftian filarial infection in Taiwan Chinese in twenty-one villages of five prefectures in the southern part of Taiwan is tabulated. It is also set out on a map. No instance of infection with *Wuchereria malayi* was found. In Kaohsiung Prefecture 4.25% of the 2,914 individuals examined, and in Tainan Prefecture 0.59% of the 1,684 examined were found to be infected. No infections were detected in the Pingtung, Chiayi and Yunling Prefectures. The degree of infection was light. R.T.L.

#### 549—Citrus Industry.

- a. BRAGDON, K. E. & HANKS, R. W., 1955.—“Distribution of burrowing nematode *Radopholus similis*, in Florida.” **36** (1), 10-11, 22.
- b. SUIT, R. F., 1955.—“The experimental basis and limitations of the pull-and-treat method of handling spreading decline.” **36** (1), 12, 14-16.

(549a) As a result of a survey of about 420 groves in 18 counties in Florida to ascertain the extent of spreading decline disease of citrus, the causal agent *Radopholus similis* was found in 325 groves covering about 3,000 acres of trees showing decline, viz., 22 in Highlands, four in Hillsborough, six in Lake, 13 in Orange, one in Pinellas and 279 in Polk. The source of the nematode was infested nursery stock in 47 groves and home site ornamentals in 41 groves. The disease had spread from other groves in 75 instances and 18 groves had become infested from other causes. R.T.L.

(549b) Attempts to control spreading decline in citrus by treating the trees in position with D-D and other compounds failed, because of their toxic effects, while the removal of those visibly affected did not prevent the spread of the infection. A satisfactory result was obtained, however, when a border of four or more apparently healthy trees around those visibly affected were pulled up and burnt and the soil was injected at a depth of 12 inches with D-D at the rate of 60 gal. per acre. After an interval of two to three months or longer the area was replanted. An essential preliminary is to map the trees for removal and, within a month, to sample the soil for *Radopholus similis* at intervals outwards from the margin of the visibly affected area until the nematode is found no longer. As no resistant rootstock is available, new stock should not be introduced from infested nurseries, implements should be cleaned and adjacent infected ornamentals should be cleared out. R.T.L.

## 550—Clinica Veterinaria. Milan.

- a. SCOLARI, C., 1955.—"Ricerche sulla frequenza della plerocercosi da *Diphyllbothrium latum* nei pesci dei laghi dell'Italia Settentrionale e sulla incidenza della infestazione nelle diverse specie ittiche recettive." 78 (7), 210-214.
- b. PETTENELLA, G. & SELLA, A., 1955.—"Metodica coprologica per un corretto conteggio di uova di elminti." 78 (8), 235-241.
- c. PANEBIANCO, F. & SCIUTTERI, G., 1955.—"Bronchite circoscritta da *Spiroptera sanguinolenta* (Rud. 1819) in cane." 78 (9), 257-262. [English summary p. 262.]
- d. VIANELLO, G. & VICENZONI, V., 1955.—"L'azione antielmintica dell'adipato di piperazina sugli ascaridi, gli strongili e gli ossiuri del cavallo." 78 (9), 263-266. [English summary p. 266.]
- e. VIANELLO, G. & VICENZONI, V., 1955.—"L'azione antielmintica dell'adipato di piperazina sugli ascaridi del pollo." 78 (11), 365-368. [English summary p. 368.]

(550a) In 20 lakes of northern Italy, Scolari ascertained the incidence of *Diphyllbothrium latum* larvae in *Perca fluviatilis*, and in two or three of these lakes he examined seven other susceptible species. Three to 160 fish were autopsied per species in each lake. Infected fish were found in four lakes and, compared with Parona's results (1887), the incidence showed a disturbing increase. The greatest rate of infection was in the perch, of which 111 out of 160 in Maggiore Lake and 30 out of 34 in the Lake of Varese were infected. In the perch, plerocercoids were only encountered in the muscle and rarely exceeded two per fish. In *Esox lucius* and *Lota vulgaris*, the other species found infected, plerocercoids were prevalent in the viscera. The regulation in Italy to destroy infected fish is wasteful when they could be rendered innocuous by freezing. M.MCK.

(550b) Pettenella & Sella describe a special slide for counting eggs in faeces. It measures 90 × 50 × 10 mm. and contains eight wells, each of 0.3 c.c. capacity, the upper diameter being 15 mm. and the maximum depth, 5 mm. From a filtered suspension of 3 gm. of faeces in 45 c.c. of water, 0.2 c.c. is pipetted into each well, which is filled with saturated sodium chloride solution and the cover slips are applied. After 15 minutes the eggs are counted. The total number, when multiplied by 10, gives the number of eggs per gramme. M.MCK.

(550c) The histological changes found in the lungs and oesophagus of a dog, infected with *Spirocera lupi*, which was autopsied in Messina are described and are illustrated by several photomicrographs. M.MCK.

(550d) A horse and a mule with multiple intestinal helminths received 300 mg. of piperazine adipate per kg. body-weight, administered to each in a mixture of 2 kg. of rolled oats and 2 kg. of wheat germ, slightly moistened. The animals showed a little unrest and slight pain at urination for about twelve hours. Four days later all the ascarids had been expelled. After ten days the strongyle egg count was reduced to 100 e.p.g. from 600 e.p.g. and 800 e.p.g. respectively, and the oxyurid ova in the horse had disappeared from the anus. The picture was unchanged 60 days later. M.MCK.

(550e) No ascarids were found when 37 infected fowls weighing 1-2 kg. and 33 fowls weighing 600-800 gm. were autopsied six or seven days after treatment with piperazine adipate. Each had received a single dose of 500 mg. in two gelatin capsules or tablets containing 250 mg. each. In four heavily infected birds, only two immature ascarids were present 25 days after treatment. At the time of treatment these were probably wandering larvae; on this account dosing should be repeated after 40-50 days. A dose of 1,000 mg. per kg. body-weight caused no disturbance; 5,000 mg. per kg. produced slight somnolence and fluidity of faeces. The administration of the drug in one dose explains the improvement on the results obtained previously by giving piperazine in the food or drinking water. Some *Raillietina* were expelled during treatment. M.MCK.



**551—Conselhos para a Defesa Sanitária das Culturas. Direcção-Geral dos Serviços Agrícolas, Portugal.**

- a. ANON., 1955.—“Um grave inimigo da cultura da batata a anguilula da raiz da batateira (*Heterodera rostochiensis* Woll.).” No. 17, 8 pp.

(551a) This is a popular account of the potato-root eelworm, its distribution, life-history, effects on the host and methods for determining its presence and for its control. It has not yet been found in Portugal. M.T.F.

**552—Deutsche Landwirtschaft.**

- a. KALBE, I., 1955.—“Über die Einwirkung der natürlichen Kompostierung auf die Lebensfähigkeit von Spulwurmeiern.” 6 (9), 440–441.

(552a) Kalbe has carried out a series of experiments to determine whether *Ascaris* ova survive the process of “natural composting”, a method much in use in Berlin for transforming all kinds of waste (including abattoir waste and stall manure) into material resembling natural forest humus. The compost heaps reached a temperature of 45° to 60°C. after four to six days: even at temperatures of 37° to 39°C. *Ascaris* ova were killed after ten days. Kalbe concludes that this type of compost is not a source of infection for animals especially pigs. A.E.F.

**553—Discovery Reports.**

- a. MARKOWSKI, S., 1955.—“Cestodes of whales and dolphins from the Discovery collections.” 27, 377–395.

(553a) The ten species of cestodes from whales and dolphins identified by Markowski include two new species and two larval stages which cannot be specifically named. The known forms are *Tetraboethrius affinis*, *T. wilsoni* (recently made a synonym of *T. affinis* by Baer but considered by Markowski to be valid species), *T. ruudi* and *T. schaeferi* n.sp. for *T. affinis* of Baylis, 1926 nec Loennberg, 1892. The shape of the body of *T. schaeferi* is slender and flattened and the longitudinal muscles form two rings. *Trigonocotyle globicephalae* occurred in *Globicephala edwardi* off Cape Town, South Africa. *T. prudhoe* n.sp., from *Steno bredanensis*, *Lagenorhynchus obscurus* and *L. australis* near East Falkland Islands, differs from other species in Cetacea in the serrate strobila, the collection of the longitudinal muscles into bundles separated by muscular septa, and the arrangement of the testes which are mainly in the dorsal part of the segment. Other species mentioned are *Priapocephalus grandis* and *Diplogonoporus balaenopterae*. The sperm whale *Physeter catodon* at South Georgia was parasitized by a larval *Phyllobothrium* (sens.lat.) sp. and a Tetraphyllidean larva. That host specificity does not occur among these cestodes is borne out by a table which sets out the individual species under their respective hosts. R.T.L.

**554—Documenta de Medicina Geographica et Tropica. Amsterdam.**

- a. BRAKEL, C. H. VAN, 1955.—“Eosinophilia in the tropics.” 7 (3), 263–269.

(554a) Van Brakel discusses the factors concerned in the production of tropical eosinophilia. These are chiefly (i) the presence of parasites in the alimentary canal, (ii) direct contact of helminth larvae with surrounding tissue and (iii) allergic tissue eosinophilia without direct contact with parasites. Many of the reports of cases in India fail to eliminate filarial or *Strongyloides* infections and, on the strength of a marked eosinophilia combined with the clinical picture, erroneously assume a special aetiological entity. R.T.L.

**555—Dokladi Akademii Nauk SSSR.**

- a. RIKOVSKI, A. S., 1955.—[On the mutual exchange of helminths between the elk and domestic sheep (with reference to *Parafasciolopsis fasciolaemorpha*).] **104** (2), 335–336. [In Russian.]
- b. LOGACHEV, E. D., 1955.—[On the fine structure of muscular fibres in trematodes and cestodes.] **105** (2), 390–392. [In Russian.]
- c. STUDENTSOVA, T. L., 1955.—[Changes occurring in the nerves of the genital organs of a dog infected with *Trichinella*.] **105** (4), 877–880. [In Russian.]

(555a) In the Kaluga region, where wild elk and farm stock share the marshy pastures, 90% of elk were infected with *Parafasciolopsis fasciolaemorpha* at an intensity of 25 to 19,000 worms per animal. Fifty-five local cattle and goats when slaughtered were uninfected but *P. fasciolaemorpha* was found in the liver of six out of 120 sheep. One sheep was successfully infected with cercariae collected from *Planorbis corneus* in marshes frequented only by elk. *P. fasciolaemorpha* cercariae, having overwintered in the intermediate host, began to be shed into the water as soon as the snails ceased to hibernate and encysted within one hour on aquatic plants and surface foam. The infection of snails increased from 4–5% in May to 60–65% in November. Undoubtedly the watering places used in common are the sources of transmission and therefore it is recommended that the animals should be watered in river sections with running water. Some other examples of natural transmission from domestic animals to wild and captive elk are *Oesophagostomum venulosum*, *Dicrocoelium dendriticum*, *Fasciola hepatica*, *Oesophagostomum asperum* and *Trichuris ovis*. G.I.P.

(555b) The muscle fibres of trematodes and cestodes are composed of two protoplasmic layers, an axial layer of kinoplasm and a peripheral layer which, together with the surrounding myolemma (homologous with the sarcolemma in higher animals), is the component determining the shape of the fibre. In *Opisthorchis felineus* the peripheral layer contains occasional supporting fibrils. Nuclear substances were not observed. In segmented cestodes the muscle fibres lie parallel to one another; in *Ligula intestinalis* they anastomose and the axial protoplasmic layer is replaced by a gaseous space, while the flattened peripheral protoplasmic layer functions as the kinoplasm. It is suggested that the gaseous space reduces the weight of the worms and is an adaptation to parasitism in fish. G.I.P.

(555c) Studentsova describes and illustrates the morphological reaction of nerve elements to the development of *Trichinella* cysts in striated muscles of the urino-genital system of a dog. The nerve bands near a cyst twist and give off small bundles leading directly to the cyst. On entering the cyst these branch and wind, becoming lost in the capsule, and some were seen to pass into the cavity. Nerve elements lead both to normal and to degenerating cysts and were often accompanied by blood vessels. She concludes that the reaction is not only characterized by irritation and degeneration of the nerve fibres but also by a subsequent regeneration of a new nerve apparatus leading to the cyst. G.I.P.

**556—East African Medical Journal.**

- a. NELSON, G. S., 1955.—“A preliminary report on the out-patient treatment of onchocerciasis with antrypol in the West Nile District of Uganda.” **32** (11), 413–429.

(556a) Nelson reviews the literature of onchocerciasis and its treatment by antrypol. From his own observations on the clinical effects of 0.5 gm. followed by 1 gm. weekly for five to six weeks in 56 cases at Bondo in the West Nile District of Uganda, where almost the whole population is infected, he concludes that the drug is disappointing and dangerous and should only be given to patients under close medical supervision. He recommends that attempts to control the disease therapeutically should be discontinued until a less toxic and more efficient drug becomes available and that meanwhile efforts should be made to destroy the vector, which in this region is *Simulium neavei*. R.T.L.



**557—Gartenwelt.**

- a. GOFFART, H., 1955.—“Über Älchen an Kakteen und Dickblattgewächsen.” 55 (17), 270–271.
- b. EHRLE, L., 1955.—“Die Bekämpfung der Bodenkrankheiten.” 55 (17), 274–275.
- c. FISCHER, H., 1955.—“Nematoden als Ursache von Bodenmüdigkeit in Baumschulen.” 55 (21), 333–335.

(557a) The two nematodes which can attack and damage cacti and succulents are *Meloidogyne* spp. and *Heterodera cacti*. Their appearance and life-history are briefly described. *Cereus*, *Mammillaria*, *Phyllocactus* and *Epiphyllum* are particularly susceptible to *H. cacti* which can also develop on *Opuntia*. The nematode is present in a number of nurseries in west and north Germany and is frequently found on imported plants. Complete eradication is difficult and it is preferable to destroy infested plants. M.T.F.

(557b) The relative effects of steam sterilization and soil treatment with Larvacide (chloropicrin) are compared and it is concluded that their influence in the long run is not clear. Tables are presented of the effects of different doses of Larvacide on the cropping and root galling of cucumbers, and on the costs of using steam sterilization. J.B.G.

(557c) Soil sickness in nurseries is stated often to be due to ectoparasitic nematodes. *Pratylenchus* spp. have been found on fruit trees, roses, *Crataegus*, privet and many other nursery plants. Cases of sickness are known in nurseries for deciduous and coniferous trees. Chemical control is possible with D-D mixture or chloropicrin and may be supplemented by mulching and crop rotation. But the problem of soil sickness is complex and the control of nematodes is not the whole answer. M.T.F.

**558—Gazzetta Medica Italiana.**

- a. BIRZLE, H., 1955.—“La terapia delle infezioni elmintiche nell'intestino dell'uomo.” 114 (3), 58–59.

(558a) Birzle reviews the use of some common anthelmintics in the treatment of *Ascaris*, *Enterobius* and *Trichuris* infections in man. M.MCK.

**559—Geburtshilfe und Frauenheilkunde.**

- a. KÖKER, H., 1955.—“Sind Oxyuren im weiblichen Genitale und in der unteren Bauchhöhle stärker pathogen als im Darm?” 15 (8), 749–753.

(559a) Köker discusses, on the basis of earlier reports and of a case of his own, the question as to whether *Enterobius* are more pathogenic in the female genital tract and the lower abdomen than in the intestine. He concludes that only when *Enterobius* have died in the genital tract and lower abdomen and have released toxic products do they cause more severe reactions in the genital organs than those which occur in the peritoneum. A.E.F.

**560—Gesunde Pflanzen. Frankfurt.**

- a. OBERTHÜR, K., 1955.—“Internationale Nematodentagung in Wageningen.” 7 (9), 199–203.
- b. KÖHLER, H. & HAMANN, K., 1955.—“Massnahmen zur Überwindung der Nematodenverseuchung der Rübenfelder in Rheinland-Pfalz.” 7 (10), 226–228.
- c. KABIERSCH, W. & OBERTHÜR, K., 1955.—“Bodenuntersuchungen zur Feststellung von Kartoffelnematoden.” 7 (11), 245–251.

(560a) Oberthür emphasizes the importance of plant-parasitic nematodes as pests of crops, and describes the proceedings of the “International Symposium on Plant Nematodes and the Diseases they Cause” held at Wageningen, Holland in 1955. J.J.H.

(560b) Over 100 years of sugar-beet cultivation in the Rheinland-Pfalz region of Germany have resulted in “beet sickness” caused by the sugar-beet nematode. In 1954 an intensive examination of the region showed that the heaviest infestations were found in the

regions close to the sugar-beet factories and in fields conveniently placed for the removal and transport of the sugar-beet crop. High populations were often found in fields where bomb-holes had been filled with waste soil from sugar factories. High viable cyst populations were not always associated with crop loss. Farmers were notified of the results of examination of their fields and advised on future cropping. The soil sampling method is described. J.J.H.

(560c) Kabiersch & Oberthür describe the routine sampling of soil for the detection of potato-root eelworm as used in Holland and by the Plant Protection Station in Hanover. Samples are taken with a semi-cylindrical spoon 5 cm. long carried at the end of a rod and are poured into a strong paper bag, 20 cm. deep, which is held open by a metal band. The band forms part of a holder bearing a metal tongue to scrape the earth out of the spoon into the bag. Each bag holds about 50 spoonfuls, i.e. about 250 gm. of fresh soil. Where the rows of potatoes are 62.5 cm. apart, the spacing of samples 6.25 m.  $\times$  8 m. is sufficient to give an idea of the degree of infection. In the laboratory the samples are arranged in a rack and dried for 24-48 hours at 40°C. and then sieved with water sprays in a battery of Fenwick cans. The samples are examined for cysts in white dishes using a magnifying glass. About 600 sample bags can be examined daily by five persons with a battery of six cans. The determination of foci of infection in the field, the recording of information in the laboratory and the examinations for eelworm officially required before potatoes can be exported are also described.

M.MCK.

#### 561—Höfchen-Briefe. Bayer Pflanzenschutz-Nachrichten.

- a. BECKER, A., 1955.—“The occurrence of wheat earcockle in the Eifel.” English edition, 8 (1), 53-58.

(561a) Earcockle due to *Anguina tritici* is now rare in Germany owing to the use of new seed, seed dressing and crop rotation, but it is still frequently found in the South Eifel. Cockle is frequently found along with twist caused by the fungus *Dilophospora alopecuri*. Although at present earcockle and twist are not of economic significance protective measures should not be neglected.

R.T.L.

#### 562—Indian Journal of Helminthology.

- †a. TRIPATHI, Y. R., 1955.—“Studies on the parasites of Indian fishes. II. Monogenea, Family: Dactylogyridae.” 7 (1), 5-24.  
 †b. SARWAR, M. M., 1955.—“On the synonymy of *Oesophagostomum indicum* with *Oesophagostomum asperum* and *Oesophagostomum vigintimembrum* with *Oesophagostomum venulosum*.” 7 (1), 25-30.  
 †c. CHATTERJI, P. N., 1955.—“On a new avian trematode of the genus *Crassiphiala* Van Haitsma, 1925.” 7 (1), 31-34.  
 †d. TANDON, R. S., 1955.—“On a new amphistome *Paramphistomum spinicephalus* n.sp. from the rumen of buffalo, *Bos bubalis*, from Lucknow.” 7 (1), 35-40.

(562a) The following eleven new monogenetic trematodes, one of which is placed in a new genus, *Pseudodiplectanum*, were collected from the gills of marine and estuarine fishes in India: *Lamellodiscus indicus* n.sp. from *Sparus sabra*; *Diplectanum latesi* n.sp. from *Lates calcarifer*; *D. maculatum* n.sp. from *Otolithus maculatum*; *D. polynemus* n.sp. from *Polydactylus indicus* and *Eleutheronema tetradactylum*; *D. minutum* n.sp. from *Sciaena glauca*; *D. sillagonum* n.sp. from *Sillago sihama*; *D. puriensis* n.sp. from *Sillaginopsis panijus*; *D. umbrinum* n.sp. from *Umbrina dussumieria*; *Squamodiscus secundus* n.sp. from *Therapon jarbua*; *Pseudodiplectanum cynoglossum* n.g., n.sp. from *Cynoglossus arel*. Keys are provided for the five species of *Lamellodiscus* and for 13 of the 16 species of *Diplectanum*. *Squamodiscus* Yamaguti, regarded by Price and Chauhan as synonymous with *Diplectanum*, is considered



to be a distinct genus as it has 9 to 15 pairs of head organs while the cirrus is long, filamentous and enclosed in a sac. *D. echeneis* Wagener is a synonym of *Lamellodiscus ignoratus* Palombi. *Pseudodiplectanum cynoglossum* n.g., n.sp. differs from all other Diplectaninae in the structure of the cirrus and its anchors are unequal. R.T.L.

(562b) As the number of elements in the external leaf crown and the position of the cervical papillae are variable in species of *Oesophagostomum*, *O. indicum* is considered to be a synonym of *O. asperum* and *O. vigintimembrum* a synonym of *O. venulosum*. R.T.L.

(562c) *Crassiphiala amulai* n.sp. from the kingfisher *Halcyon smyrnensis fusca* from the United Provinces, India, differs from the type species *C. bulboglossa* in that the posterior testis is bilobed, there is a well developed genital cone and a sphincter muscle guarding the genital opening. It also differs from *C. ceryliformis*, which has no sphincter muscle around the genital opening, in having a larger and well developed protrusible genital cone but lacks vesicula seminalis and ductus ejaculatorius. R.T.L.

(562d) *Paramphistomum spinicephalus* n.sp. collected from the rumen of *Bos bubalis* at Lucknow resembles *P. orthocoelium* but has five or six rows of spines at the anterior end, the thick intestinal caeca end very near to the acetabulum, the excretory pore is far behind the opening of Laurer's canal and there is an accessory transverse excretory duct slightly anterior to the excretory bladder. The vitellaria are elongated or irregularly shaped. The eggs are larger. R.T.L.

### 563—Indian Journal of Medical Sciences.

- VORA, D. D., 1955.—"Comparative clinical study of anthelmintic action of santonin and intra-gastric oxygen against *Ascaris lumbricoides*." 9 (10), 573-578.
- GADGIL, R. K. & SHAH, S. N., 1955.—"Human schistosomiasis in India. Infection of snails with *Schistosoma haematobium*." 9 (10), 586-591.
- SHAH, S. N. & GADGIL, R. K., 1955.—"Human schistosomiasis in India. The study of snails." 9 (10), 592-596.

(563a) Vora has continued his previous studies on intra-gastric oxygen therapy against roundworm infections and now compares its efficiency in 97 cases with that of santonin in 84 cases. In both sets of cases some worms were passed spontaneously. After these were deducted positive response to 1,000 c.c. of oxygen (after overnight starvation and an enema) and to 5 grains of santonin (followed by a saline purge) was 46% and 42% respectively. The oxygen therapy caused no serious side effects and Vora maintains that it is the cheapest anthelmintic so far available. R.T.L.

(563b) Although autochthonous cases of schistosome infection in man have been recorded at various times from Poona, Bombay, Madras, Goa, Punjab and "the present Saurashtra" and Malsana village in Nasik district, all efforts by various investigators to infect local snails have hitherto been negative. Schistosome eggs passed in the urine by a patient from the village of Gimvi in the Ratnagiri district were used in an attempt to infect laboratory-bred descendants of specimens of *Ferrissia tenuis* from the same village, and of *Limnaea luteola*, *Planorbis torquus* and *Indoplanorbis exustus* from the suburbs of Bombay and wild specimens of *Paludomus obesa*. The experiments were negative except those with *Ferrissia tenuis* from which brevifurcate furcocercariae were obtained. Attempts to infect laboratory animals with these cercariae have not yet been made. R.T.L.

(563c) The molluscan fauna of the locality where Gadgil & Shah found, in 1952, endemic cases of schistosome infections in man consists of three species *Paludomus obesa*, *Ferrissia tenuis* and some empty shells of *Indoplanorbis exustus*. A technique for breeding *P. obesa* and *F. tenuis* in the laboratory prior to testing them experimentally as hosts of the local schistosome is described. The snail previously considered by them to belong to the genus *Turbinicola* has now been identified as *Paludomus obesa*. R.T.L.

**564—Indian Tobacco.**

- a. MATHRANI, D. I., 1955.—“Root-knot of tobacco caused by *Meloidogyne Goldi*.” 5 (3), 146.

(564a) During a recent examination of a few specimens of root-knots of tobacco, at the Central Tobacco Research Institute at Rajahmundry, Mathrani identified two species of *Meloidogyne*, viz., *M. incognita acrita* and *M. arenaria*. R.T.L.

**565—Informe Mensual. Estación Experimental Agrícola de “La Molina”.**

- a. SIMON F., J. E., 1955.—“Influencia de los factores planta, tierra y clima en el desarrollo de *Heterodera rostochiensis* Wollw. en el Perú.” 29 (336), 8–14.  
 b. DOMINGO MÉNDEZ, E. & GAMERO DE LA TORRE, O., 1955.—“Nematodes y selecciones de algodón Tangüis.” 29 (340), 11–14.

(565a) *Heterodera rostochiensis* is not apparent on the coast of Peru although seed potatoes have been brought there for centuries from the infected mountainous region. Simon took susceptible plants of *Solanum andigenum* which had germinated in both these regions and grew them on the coast and in the hills, either in pots of local soil or in pots of the alternative soil from the other region. Each pot contained initially at least 10 viable cysts. The experiments conducted in the mountains yielded higher densities of cysts in the soil than the equivalent experiments conducted on the coast and similarly those experiments involving the acid mountain soil yielded much higher counts than the equivalent experiments involving the neutral coastal soil. No cysts developed in the pots containing coastally germinated plants with soil from the coast, irrespective of the locality of the experiment. Simon concludes that the nature of the soil as well as climate has contributed to the absence of *H. rostochiensis* on the Peruvian coast and that once *H. rostochiensis* has penetrated the roots of a susceptible potato plant it can complete its cycle independently of climatic and soil conditions, provided these conditions permit normal development of the host plant. M.MCK.

(565b) [This paper also appears in *Boletín Trimestral de Experimentación Agropecuaria, Lima*. For abstract see No. 527a above.]

**566—Irish Veterinary Journal.**

- a. SMITH, K. J., 1955.—“The discovery of *Echinococcus granulosus* in an Irish reared dog.” 9 (8), 198–199.

(566a) Although the faeces of a considerable number of dogs at the small animal clinic at the Veterinary College of Ireland were examined for eggs of *Echinococcus granulosus* all proved negative except one. At autopsy several gravid segments, numerous scolices and one complete worm were collected from the gut contents and scrapings of the intestinal mucosa. R.T.L.

**567—Japanese Journal of Veterinary Research.**

- a. NAKAMURA, R., MATSUHASHI, A., YAMASHITA, J., SATOH, H., HARADA, F. & NAKAJIMA, Y., 1955.—“Studies on ‘Kasen’ of horses in Hokkaido. II. Results obtained in 1954.” 3 (2), 73–81.

(567a) “Kasen” in horses in Hokkaido seems similar to Queensland itch or allergic dermatitis following the bites of sandflies. Although eosinophilic infiltration was seen in serial sections of the skin of all the eighteen horses examined, microfilariae of *Onchocerca cervicalis* were found in only two of them. Subcutaneous injection of Neostinal is said to have been somewhat effective, but not the arsenical Solminol or the piperazine derivatives Supatonin and Hetrazan syrup. Beneficial results followed the subcutaneous injection of Neostinal, of Allergin alone and of Allergin and Solminol, but Solminol, Supatonin and Hetrazan syrup gave no clinical improvement. R.T.L.



**568—Journal of the American Medical Association.**

- a. KAY, S., 1955.—“*Paragonimus westermani* infestation involving the anterior abdominal wall. Report of a case simulating acute appendicitis.” 159 (18), 1734-1736.

**569—Journal of the Biological Photographic Association.**

- a. PETANA, W., 1955.—“A simple preparation of helminthological specimens for photomicrographic purposes.” 23 (2/3), 65-68.  
b. SMITH, R. F., 1955.—“Differential optical staining of colorless living organisms in macrophotography.” 23 (2/3), 74-77.

(569a) Small nematodes can be kept almost indefinitely in a mixture containing isotonic saline solution 100 ml., absolute alcohol 30 ml., formalin (40%) 1.5 ml. and glacial acetic acid 1 ml. If after fixing for half to one hour the specimens are washed for 20 minutes in running water, then put into about 20 ml. of water containing 10 drops of Lugol's iodine solution (which stains them a light brown colour) they can be mounted in this fluid under a coverslip and sealed with wax or glycerine jelly. Preparations of larvae and ova can be made on a slide by mixing a small amount of the material with two drops of saline and one drop of Lugol's solution. That crisp and clear photomicrographs are obtained is illustrated by 9 photographs. Orthochromatic material with a light green filter gives the best results. R.T.L.

(569b) Five coloured photographs of a liver-fluke [*Dicrocoelium dendriticum*] illustrate the results obtained by differential optical staining, utilizing a standard photographic apparatus with three light sources and red, green, blue and yellow filters. R.T.L.

**570—Journal of the Department of Agriculture. South Australia.**

- a. McCORMACK, P., 1955.—“Tapeworms of livestock.” 59 (4), 161-164.

**571—Journal of Economic Entomology.**

- a. LEA, Jr., A. O. & DALMAT, H. T., 1955.—“Field studies on larval control of black flies in Guatemala.” 48 (3), 274-278.  
b. LEA, Jr., A. O. & DALMAT, H. T., 1955.—“A pilot study of area larval control of black flies in Guatemala.” 48 (4), 378-383.  
c. MOORE, A. D., 1955.—“*Ips confusus* (Lec.) adults infected with nematodes.” 48 (4), 478.

(571a) From field studies on the control of *Simulium* larvae, carried out in rivulets (10 to 100 gallons of water per minute), intermediate streams (100-1,000 gallons per minute) and large streams (1,000 gallons and over per minute), Lea & Dalmat conclude that EPN and heptachlor give control comparable to that of D.D.T. only in streams of less than 500 gallons per minute. In larger streams only D.D.T. was effective. S.W.

(571b) Lea & Dalmat have conducted a small scale experiment on the control of adult simuliids by larvicidal treatment of the breeding streams. An area of about 80 square miles in a region of Guatemala known to be endemic for onchocerciasis was treated and retreated at intervals over a period of three months. During this time and for the three months afterwards that it was studied, the adult biting population was depressed. On the basis of this survey recommendations and estimated costs for a control campaign on a larger scale are given. S.W.

(571c) In California the five-spined engraver beetle, *Ips confusus*, was found to be infected with two species of nematode. In 21% adults of *Aphelenchulus* sp. were free in the body-cavity and in 83% there were immature forms of *Aphelenchoides* sp. either in the rectum, free in the abdominal cavity or under the elytra. Both species were commonly present in each infected beetle. R.T.L.

**572—Journal of the Egyptian Medical Association.**

- a. HALAWANI, A. & TAMAMI, M., 1955.—“Preliminary report on the cytological diagnosis and incidence of the bilharzia-cancer of the bladder in Egypt.” 38 (8), 455-465.
- b. ABDALLA, A. & SAIF, M., 1955.—“On the anthelmintic efficacy of piperazine adipate.” 38 (8), 466-469.
- c. HALAWANI, A., ABDALLA, A., SHAKIR, M. H. & SAIF, M., 1955.—“Sulphaemoglobinuria during the administration of antimony-III-pyrocatechin di-sulphonate of sodium.” 38 (12), 711-717.
- d. HALAWANI, A. & LATIF, N., 1955.—“ $\beta$ -nitrostyrene: a snail and insect poison. (A preliminary report.)” 38 (12), 727-729.

(572a) Bilharzial cancer of the bladder occurs at a much younger age than non-bilharzial cancer. Of the fifteen cases, seen by the authors, three were between 20 and 30 years of age, seven between 30 and 40, four between 40 and 50 and one at 65. All gave histories of urinary bilharziasis of not less than 15 years' duration. Microscopical examination of smears of the urinary deposit, stained by 1% neutral red in 96% alcohol, revealed malignant mitotic cells in all of the fifteen cases. Although not decisive this method is a useful indicator for further cystoscopic or radiological examination. R.T.L.

(572b) Piperazine adipate in dosages of 0.6 gm. thrice daily for seven days was administered to seven patients, a second course to two and a third to one. A dose of 4.5 gm. was given on one occasion to 15, a second time to five, a third time to three and a fourth time to one. All had hookworm infections and all remained positive. When the drug was tested against *Enterobius vermicularis* in seven patients, each of whom received 0.6 gm. thrice daily for seven days, five became negative. After a second course one of the two positives became negative. Three out of six patients became negative after 0.6 gm. thrice daily for five days. Two patients became negative after a single dose of 4.5 gm. The effect on cases of *Ascaris lumbricoides* infection was also tested. Four who took 0.6 gm. thrice daily for seven days were all negative one week later. Nine took the same treatment for five days and two remained positive, one of these becoming negative after a second course. 19 cases received a single dose of 4.5 gm. in one day but eight remained positive. Seven of these received a second single dose and four became negative; the remaining three became negative after a third dose. When 9 gm. were administered in one day to each of three patients they all became negative. R.T.L.

(572d) Five parts per million of  $\beta$ -nitrostyrene, a compound related to  $\alpha$ -nitrostilbene, killed the cercariae of *Schistosoma mansoni* in five minutes. When *Planorbis* were placed in a solution of 10 p.p.m. in tap-water they immediately shrank into their shells and died within 24 hours. The knock-down effect occurred also in higher dilutions. R.T.L.

**573—Journal of the Egyptian Public Health Association.**

- a. DIAS, E. & DAWOOD, M. M., 1955.—“Preliminary trials of ‘BET’ on killing the snails of Egypt.” 30 (1), 9-22.
- b. CLÈVE, E. A., LANGSJOEN, P. H. & HENSLEY, N. M., 1955.—“The toxic effect of tartar emetic in treatment of schistosomiasis.” 30 (1), 27-37.
- c. DAWOOD, M. M., 1955.—“*Ascaris* in Alexandria.” 30 (2), 69-73.
- d. WELLS, W. H. & RANDALL, B. H., 1955.—“Salted mullet (*fessikh*) as a source of human infection with *Heterophyes heterophyes*.” 30 (3), 83-86.
- e. DAWOOD, M. M., 1955.—“Diagnosis of cancer bladder by cytological examination of urine.” 30 (6), 185-192.

(573a) Following his discovery of proteolytic bacteria (*Bacillus pinottii*) lethal to the intermediate hosts of human schistosomiasis in Brazil, Dias took peptone cultures of these bacteria to Egypt and, in association with Dawood, made some experiments on local molluscs there. Owing to the high cost of peptone various other substances were tested. Blood from the slaughterhouse provided a cheap substitute and cultures in 5% boiled blood gave a good growth. A series of experiments in jars, in an experimental pool and in a drain in the field



are tabulated. The results varied but the authors consider that this new method of biological control is worth further trial. The organism proved nonpathogenic to experimental animals and to those handling the cultures.

R.T.L.

(573b) [This paper is reprinted from *Amer. J. med. Sci.*, 1955, **229**, 74-80. For abstract see *Helm. Abs.*, **24**, No. 2a.]

(573c) The incidence of *Ascaris* infection among the outpatients in the Bilharzia Treatment Centres in Alexandria was about 50% in 1953. The main sources of infection were the dust on the side roads, the soil on empty pieces of land and along the edges of water drains, used for defaecation by the public, and on the floors of water closets.

R.T.L.

(573d) Four lots of salted, uncooked mullet, containing metacercariae of *Heterophyes heterophyes*, were kept in the brine for 4, 7, 10 and 14 days respectively. Each lot was fed to 10 puppies. All the ten puppies receiving the 4-days-old mullet had an average of 39 worms each. 6 out of the 10 puppies fed on the 7-days-old mullet had an average of 13 worms each and only one of the 10 puppies fed on the 10-day salted mullet was infected, a single worm being recovered. But none of the 10 puppies which ate the mullet which had been salted for 14 days acquired an infection.

R.T.L.

(573e) Examination of the urine for exfoliated cancerous cells advocated by Papanicolaou is difficult in cases with bilharzia infection and is of little use for the diagnosis of cancer of the bladder in mass surveys.

R.T.L.

#### 574—Journal of the Faculty of Agriculture, Hokkaido University.

- a. INUKAI, T., YAMASHITA, J. & MORI, H., 1955.—“Most probable route of introduction of *Echinococcus* into the island of Rebun.” **50** (2), 134-139.

(574a) Hydatid disease was unknown in Rebun Island prior to 1937. Since then 30 cases have been reported. Between 1924 and 1926 twelve pairs of the red fox from the Middle Kuriles were released in the island and protected by the National Government on account of the fine quality of the deep red pelts. There is little doubt that these foxes introduced *Echinococcus*. As the symptoms of hydatid usually become evident about ten years after infection it seems more than a mere coincidence that hydatid disease in man first began to appear in Rebun after 1937.

R.T.L.

#### 575—Journal of the Indian Medical Association.

- a. VARMA, A. K., 1955.—“Human schistosomiasis in India.” **25** (5), 173-175.  
b. SUBRAMANIAM, R. & SRINIVASAN, K., 1955.—“Therapy in filariasis.” **25** (7), 257-261.  
c. PATTANAYAK, G. C. & THOMAS, S., 1955.—“Acute intestinal obstruction due to *Ascaris lumbricoides*.” **25** (7), 275.  
d. LESLIE, H. & TOVEY, F. I., 1955.—“Relation of hookworm infestation with duodenal ulcer.” **25** (14), 548-551.  
e. CHAUDHURI, R. N., 1955.—“Hookworm disease.” **25** (14), 555-558.

(575a) Varma summarizes the recorded instances of schistosome infections in man in India and concludes that there is no doubt but that autochthonous cases have occurred. As the identifications were based on the eggs, which are of *haematobium* type, and as the eggs of schistosomes common in domesticated animals in India are also of this type, but show considerable variation in size and shape, he considers that the specific identity of the parasite in these Indian cases is still doubtful.

R.T.L.

(575b) In cases of filarial infection with swelling of long standing piperazine compounds proved of very limited value. Pentavalent antimony was of little use, spirochin hydriodide gave no measurable reduction but sodium fluoride injections combined with the application of an elasto-crepe bandage, in early cases softened and in chronic cases reduced the size of the swelling.

R.T.L.

(575d) Duodenal ulcer and hookworm infections are both common in Mysore State and adjoining areas. The incidence of duodenal ulcer is no higher in cases with hookworm infection than in the normal population but hookworm duodenitis can be differentiated from duodenal ulcer by its shorter history of dyspepsia with low acidity and spasm of the duodenal cap after a barium meal. A final diagnosis may be made from the response to anthelmintic treatment. R.T.L.

(575e) This is an abbreviated version of a lecture on the symptoms, diagnosis and treatment of hookworm, delivered during a visit to Peking. R.T.L.

#### 576—Journal of Infectious Diseases.

- a. LEWERT, R. M. & LEE, C. L., 1955.—“Studies on the passage of helminth larvae through host tissues. III. The effects of *Taenia taeniaeformis* on the rat liver as shown by histochemical techniques.” 97 (2), 177–186.
- b. KAGAN, I. G. & MERANZE, D. R., 1955.—“The histopathology of immune and normal mouse skin exposed to cercariae of *Schistosomium douthitti* (Trematoda: Schistosomatidae).” 97 (2), 187–193.

(576a) Lewert & Lee infected rats with eggs of *Taenia taeniaeformis* and investigated the histochemistry of the host's liver. During the initial stages of infection and early growth the larvae produce a collagenase-like enzyme, the acellular glycoprotein becomes changed into a more soluble state and the hepatic cells around the larvae are depleted of glycogen. When rapid growth ceases and the “collagenase” activity is reduced or absent the cysticerci become surrounded by a well defined connective tissue capsule and the adjacent liver appears to be normal with respect to polysaccharide-containing protein and glycogen. Observations on one vole infected with *Echinococcus* and one cat with *Amphimerus* indicated that similar changes occurred. S.W.

(576b) Kagan & Meranze exposed normal and immune mice to cercariae of *Schistosomium douthitti* and studied the histopathology of the skin. Both untreated cercariae and cercariae which had been freed from contaminants by treatment with penicillin G and streptomycin sulphate were used. The inflammatory response was predominantly heterophilic with localization of small mononuclear cells around the cercariae; it developed earlier and was more intense in the immune mice, reaching its peak in four days, whereas in non-immune mice little or no inflammation was observed during the first four days. Although the response to the sterilized cercariae was milder the inflammatory reaction is to the cercariae or to some product of them. There was no evidence that in immune mice the cercariae were impeded or immobilized in the skin. S.W.

#### 577—Journal of the Japanese Veterinary Medical Association.

- a. KOMINE, S. ET AL., 1955.—[Relationship between serum flocculation test and ratio of serum total proteins and fractions in bovine fascioliasis.] 8 (1), 11–13. [In Japanese.]
- b. ISHIHARA, T. ET AL., 1955.—[Anthelmintic treatment of setariasis of the spinal cord in sheep and goats.] 8 (3), 113–117. [In Japanese.]
- c. IDA, Y. ET AL., 1955.—[*Echinococcus* in sheep in Hokkaido.] 8 (4), 159–163. [In Japanese.]
- d. NAKAMURA, R. ET AL., 1955.—[Studies on ‘kasens’ of horses in Hokkaido. II. Results obtained in 1954.] 8 (6), 266–268. [In Japanese.]
- e. WATANABE, S. ET AL., 1955.—[Infestation of *Fasciola hepatica* to *Limnaea truncatula* in Niigata Prefecture.] 8 (6), 290–294. [In Japanese.]
- f. ITAGAKI, S. ET AL., 1955.—[Prophylactic examination of lumbar-paralysis in sheep and goats by extermination of *Microfilaria* in the blood of cattle.] 8 (8), 380–382. [In Japanese.]
- g. ONO, Y. ET AL., 1955.—[Comparative discussion between Ono's intradermal reaction to fascioliasis and recently announced Soulsby's method.] 8 (9), 427–429. [In Japanese.]
- h. NAKAJIMA, M., 1955.—[So-called *Ascaris* toxin.] 8 (9), 448–450. [In Japanese.]
- i. YOSHIDA, T., 1955.—[Anthelmintic experiment with hydrochloric emetin in swine.] 8 (10), 513–515. [In Japanese.]



## 578—Journal of Parasitology.

- †a. BROOKE, M. M., SWARTZWELDER, C., PAYNE, F. J., WEINSTEIN, P. & FRYE, W. W., 1955.—“An intestinal parasite survey of the Korean Prisoner of War Camp located on Koje Island.” **41** (6, Sect. 2), 13.
- †b. HOFFMAN, G. L., 1955.—“Life-cycle of *Diplostomum (baeri?)* (Trematoda: Strigeida).” **41** (6, Sect. 2), 22.
- †c. HOFFMAN, G. L., 1955.—“Studies on the life-cycle and development of *Crassiphiala bulboglossa* (Trematoda: Strigeida).” **41** (6, Sect. 2), 22.
- †d. RADKE, M. G., SCHNEIDER, M. D. & HOUGHTALING, D. G., 1955.—“Growth and development of *Schistosoma mansoni* in mice.” **41** (6, Sect. 2), 22.
- †e. KRUIDENIER, F. J. & STIREWALT, M. A., 1955.—“The structure and source of the pericercarial envelope (CHR) of *Schistosoma mansoni*.” **41** (6, Sect. 2), 22–23.
- †f. STIREWALT, M. A., 1955.—“Penetration of host skin by cercariae of *Schistosoma mansoni*. I. Observed entry into skin of mouse, hamster, rat, monkey and man.” **41** (6, Sect. 2), 23.
- †g. EVANS, A. S. & STIREWALT, M. A., 1955.—“Serologic reactions in *Schistosoma mansoni* infections: ionographic fractionation of sera of mice with progressive disease.” **41** (6, Sect. 2), 23.
- †h. HSÜ, H. F. & AMEEL, D. J., 1955.—“Intradermal reactions to *Schistosoma japonicum* and *S. mansoni* antigens in schistosome dermatitis cases.” **41** (6, Sect. 2), 23–24.

(578a) One half of a single normally passed stool from each of 1,726 prisoners of war on the North Korean Island of Koje was preserved in 10% formalin, the other in PVA fixative and were later examined in U.S.A.; the former by the formalin-ether sedimentation technique and the latter in iron haematoxylin stained films. The prevalence of helminths was *Ascaris lumbricoides* 81.3%, *Trichuris trichiura* 77.9% and hookworm 36.7%. R.T.L.

(578b) The adults of *Diplostomulum*, first found in a tumour on the brain of the stickleback *Eucalia inconstans* by Hoffman in 1954, were obtained by forcibly feeding the metacercariae to newly hatched chicks and by injecting them into the body-cavity. They have now been tentatively identified as *Diplostomum baeri?* by Dubois. *Stagnicola palustris* and *S. p. elodes* were experimentally infected with the miracidia. The cercariae, produced in daughter cysts, readily infected sticklebacks. R.T.L.

(578c) *Helisoma anceps* was successfully infected with miracidia from eggs of *Crassiphiala bulboglossa* obtained from a kingfisher, *Ceryle alcyon*. With the furcocercariae, emerging from sporocysts after 33 days, the fishes *Pimephales p. promelas* and *Fundulus diaphanus menona* were experimentally infected and encysted metacercariae formed. But in *Eucalia inconstans* the cercariae failed to develop into metacercariae and died within three months. R.T.L.

(578d) In over 100 mice experimentally infected with *Schistosoma mansoni*, the male worms were apparently not restricted in growth, whereas the females were. R.T.L.

(578e) The fine film which surrounds normally emerged *Schistosoma mansoni* cercariae is formed by secretions from the penetration gland complex prior to their emergence from the vector tissues. Subsequent discharges by the cercariae do not contribute to or aid in the formation of the peri-cercarial envelope. R.T.L.

(578f) The cercariae of *Schistosoma mansoni* used the walls of skin wrinkles as sites of choice for entry into the skin of man, monkeys, one to five-day-old mice and five-day-old rats, but the follicular orifices were used by over half of the cercariae to enter the tail and ear of adult mice and the skin of hamsters. R.T.L.

(578g) [The full account of this work appears in *Exper. Parasit.*, 1957, **6**, 8–17. For abstract see *Helm. Abs.*, **26**, No. 16b.]

(578h) [The full account of this work appears in *Amer. J. trop. Med. Hyg.*, 1956, **5**, 841–846. For abstract see *Helm. Abs.*, **25**, No. 165b.]

†Abstract of paper presented at the 30th Annual Meeting, American Society of Parasitologists, Atlanta, Georgia, December 27–30, 1955.

**578—Journal of Parasitology (cont.)**

- †i. SCHNEIDER, M. D., RADKE, M. G. & COLEMAN, M. T., 1955.—“Immunologically reactive substance from *Schistosoma mansoni*.” 41 (6, Sect. 2), 24.
- †j. HUNTER, III, G. W., KEMP, H. A., SMALLEY, H. E., WILKINS, O. P. & DIXON, C., 1955.—“Studies on schistosomiasis. XII. Results of experiments on screening potential protective ointments on mice against the cercariae of *Schistosoma mansoni*.” 41 (6, Sect. 2), 24.
- †k. SHORT, R. B., 1955.—“Chromosomes and sex determination in *Schistosomatium douthitti* (Trematoda: Schistosomatidae).” 41 (6, Sect. 2), 24.
- †l. SHORT, R. B. & MENZEL, M. Y., 1955.—“Chromosomes in parthenogenetic miracidia of *Schistosomatium douthitti* (Trematoda: Schistosomatidae) and their progeny in snails.” 41 (6, Sect. 2), 24–25.
- †m. HEALY, G. R., 1955.—“Studies on immunity to *Fasciola hepatica* in rabbits.” 41 (6, Sect. 2), 25.
- †n. CABLE, R. M., 1955.—“Affinities of the trematode family Didymozoidae.” 41 (6, Sect. 2), 25.
- †o. DUNN, M. C., 1955.—“Studies on the germ cell cycle of an ochetosomatid trematode. I. Gametogenesis in *Neoreenifer*.” 41 (6, Sect. 2), 26.

(578i) [The full account of this work appears in *Exper. Parasit.*, 1956, 5, 391–397. For abstract see *Helm. Abs.*, 25, No. 86i.]

(578j) [The full account of this work appears in *Amer. J. trop. Med. Hyg.*, 1956, 5, 713–736. For abstract see *Helm. Abs.*, 25, No. 50k.]

(578k) In *Schistosomatium douthitti* cercariae the diploid chromosomes number 14 in each sex. The male is AAZZ and the female is heterogametic with AAZW. R.T.L.

(578l) Haploid miracidia of the chromosome constitution AZ develop, at least, into large cercariae. AW ova apparently do not survive. Probably diploid parthenogenetic males (AAZZ) result from doubling the chromosome number of AZ egg cells or miracidial embryos and diploid parthenogenetic females (AAZW) from unreduced eggs. R.T.L.

(578m) There was no evidence of resistance to infection when rabbits previously immunized with extracts of tissue or regurgitated caecal contents of *Fasciola hepatica* were given 50 metacercariae as a challenge infection. At autopsy 35 days after the challenge infection there was some evidence of retardation of development of the challenge worms, especially before they entered the bile-ducts; but the primary infection was apparently not affected. Skin tests on rabbits, made 30 days to six months after infection, were equally positive at the end of three hours with antigens from *Fasciola hepatica* and *Fascioloides magna* but were negative to *Schistosoma mansoni* antigen. R.T.L.

(578n) Cable considers that a study of the excretory system of the immature flukes variously known as *Distomum fenestratum* and species of *Torticaecum* and *Monilicaecum* supports Manter's opinion that these are immature didymozoids and that the view of Fuhrmann and Poche that the Didymozoidae have been derived from the Hemiuridae is supported by many features of their adult morphology. An unspecialized marine cystophorous cercaria from Puerto Rico indicates that the hemiurid cercariae are Prosostomata and may have close relationship with the opisthorchioids. R.T.L.

(578o) In *Neoreenifer* the diploid chromosome number is 22. Eleven chromosomes appear in both the spermatozoa and ova. In spermatogenesis the cells form a rosette of 32 spermatids. The nuclei form long thin non-flagellate spermatozoa. Primary oocytes are released from the ovary with diffuse postsynaptic nuclei. For final maturation, penetration by a spermatozoon is necessary. R.T.L.

†Abstract of paper presented at the 30th Annual Meeting, American Society of Parasitologists, Atlanta, Georgia, December 27–30, 1955.



## 578—Journal of Parasitology (cont.)

- †p. KAGAN, I. G. & OLIVER-GONZÁLEZ, J., 1955.—“Preliminary studies on hemagglutination in schistosomiasis.” 41 (6, Sect. 2), 26.
- †q. SCHWINK, T. M., 1955.—“Use of organ egg counts in assaying chemotherapeutic activity against *Schistosoma mansoni*.” 41 (6, Sect. 2), 26.
- †r. MOON, A. P., OTORI, Y., WILLIAMS, J. E., FRICK, L. P. & RITCHIE, L. S., 1955.—“Field-test of four molluscicides against *Oncomelania nosophora* in the terraced-hillside habitat.” 41 (6, Sect. 2), 26–27.
- †s. WILLIAMS, J. E., MOON, A. P., OTORI, Y., FRICK, L. P. & RITCHIE, L. S., 1955.—“Applications of molluscicides against juvenile *Oncomelania nosophora* for repopulation control.” 41 (6, Sect. 2), 27.
- †t. GILFORD, J. H., 1955.—“A restudy of the genus *Allassogonoporus* (Oliver, 1938) Macy, 1940.” 41 (6, Sect. 2), 27–28.
- †u. YOKOGAWA, M., OSHIMA, T. & KIHATA, M., 1955.—“Studies to maintain excysted metacercariae of *Paragonimus westermani* in vitro.” 41 (6, Sect. 2), 28.

(578p) The preliminary results obtained with various lyophilized schistosome egg, cercaria and adult antigens with immune rabbit and human sera by Boyden's haemagglutination technique are summarized. No stage or species specificity was observed but there were cross reactions with *Fasciola hepatica* but not with *Ascaris*.  
R.T.L.

(578q) A simpler and more rapid quantitative method of drug screening for chemotherapeutic activity in mice infected with *Schistosoma mansoni* is reported. The intact intestines of treated and untreated mice are digested for six to eight hours at 55°C. to 56°C. in 5% caustic soda. Egg counts on the residues give an inverse correlation between the number of eggs and the size of the dose used. Large numbers of mice can be killed on the same day and the intestines stored in a refrigerator.  
R.T.L.

(578r) Molluscicidal tests were made, in the spring of three successive years, in an irrigated terraced-hillside habitat of *Oncomelania nosophora*. Based on the number of snails collected per man-hour the cumulative snail population reduction for the whole period was 98% for DN-1 (dinitro-*o*-cyclohexylphenol), 94% for Santobrite, 90% for Dupont Weedkiller and 65% for Dowcide B. There appeared to be less snail propagation in the area treated with DN-1.  
R.T.L.

(578s) Isolated female *Oncomelania nosophora* can propagate for two years and the juvenile snails bring about the repopulation of an area in which a dense adult snail population has been reduced by treatment. The application of 2 p.p.m. of dinitro-*o*-cyclohexylphenol to the headwaters of each irrigation area, except where unavoidable dilution occurred in ditches or after traversing rice fields, was highly effective in suppressing juvenile snails and reduced the cumulative population by about 90%.  
R.T.L.

(578t) A study of 300 specimens of a species [unnamed] of *Allassogonoporus* reveals that the relative positions of its internal structures undergo changes during growth and that flattening for staining alters their size, shape and position. As the morphological characteristics of *A. vespertilionis* and *Myotitrema asymmetrica* (type and only species of *Myotitrema*) lie within the range of variability of *A. marginalis* they are placed in its synonymy. The genus *Allassogonoporus* is consequently now represented by a single species with the genus *Myotitrema* a synonym.  
R.T.L.

(578u) Excysted metacercariae of *Paragonimus westermani* were incubated at 37°C. in equal parts of cat serum and Tyrode's solution for three weeks, then chick embryo extract and cat blood cells were added. The metacercariae were still alive after 98 days. The average length had increased from 0.6 mm. to 2.0–2.5 mm. at rest (and up to 4 mm. when stretching) and the male reproductive system, especially the testes, had begun to develop. The survival period did not differ significantly in cultures containing serum from infected cats or from normal cats.  
R.T.L.

†Abstract of paper presented at the 30th Annual Meeting, American Society of Parasitologists, Atlanta, Georgia, December 27–30, 1955.

## 578—Journal of Parasitology (cont.)

- †v. READ, C. P. & YOGORE, M., 1955.—“Respiration of *Paragonimus westermani*.” 41 (6, Sect. 2), 28.
- †w. BYRD, E. E., 1955.—“Notes on the anatomy of *Ligula intestinalis* (Linnaeus, 1758), a pseudophyllidean cestode of birds.” 41 (6, Sect. 2), 28–29.
- †x. MANKAU, S. K., 1955.—“Studies on *Echinococcus sibiricensis* (Rausch and Schiller, 1954) in laboratory mice.” 41 (6, Sect. 2), 29.
- †y. THOMAS, L. J., 1955.—“Echinococcosis on St. Lawrence Island, Alaska.” 41 (6, Sect. 2), 29.
- †z. CIORDIA, H. & JONES, A. W., 1955.—“Immunity to *Hydatigera taeniaeformis* affected by radiation of the host.” 41 (6, Sect. 2), 29.
- †ba. LAURIE, J. S., 1955.—“The *in vitro* fermentation of carbohydrate substrates by *Hymenolepis diminuta* and the action of some inhibitors.” 41 (6, Sect. 2), 29–30.
- †bb. WARREN, M. & DAUGHERTY, J. W., 1955.—“Studies on lipid metabolism in cestodes.” 41 (6, Sect. 2), 30.
- †bc. DAUGHERTY, J. W., 1955.—“The effect of fasting and alloxan treatment of the host on glycogen gradient in *Hymenolepis diminuta*.” 41 (6, Sect. 2), 30.

(578v) *Paragonimus westermani* incubated in Krebs-Ringer phosphate containing 0.01 M. glucose respired with  $Q_{O_2}$  of 0.74 to 0.86. They showed an oxygen debt on being returned to air after 30 minutes of anaerobiosis. In the first post-anaerobic period of 30 minutes the  $Q_{O_2}$  varied from 1.72 to 5.06 and from 1.58 to 2.74 in the second post-anaerobic 30 minutes, whereas Bueding found that with *Schistosoma mansoni* there was a higher  $Q_{O_2}$  without an oxygen debt. R.T.L.

(578w) Byrd gives details of the position of the various genital organs and excretory ducts observed in a single sexually mature specimen of *Ligula intestinalis*. R.T.L.

(578x) The growth rate of the multilocular cyst of *Echinococcus sibiricensis*, in laboratory white mice, is by exogenous and endogenous branching and is much slower than in *Microtus* sp. The germinal membrane begins to proliferate in about ten days but scolex production does not occur until about the fourth month after infection. In some of the mice the cysts are sterile, in others there are sterile and viable cysts. R.T.L.

(578y) Ten out of 74 *Microtus oeconomus* trapped at North East Cape, St. Lawrence Island, harboured cysts of *Echinococcus sibiricensis* and all of six Arctic fox cubs had heavy infections with adults. After immersion in water at 2°C. for eight months the eggs were still viable. R.T.L.

(578z) Rats rendered immune to *Hydatigera taeniaeformis* could be infected after being subjected to 1,250 roentgens of gamma radiation which interfered with the calcification process by which larval cestodes are destroyed in immune hosts. R.T.L.

(578ba) Laurie has estimated the utilization by *Hymenolepis diminuta* of various carbohydrates which might be available in the host's gut. Phlorizin inhibits the utilization of exogenous glucose, galactose, mannose and xylose but not endogenous fermentation. Quinacrine inhibits anaerobic utilization of glucose. The glucose-phlorizin-cestode and glucose-quinacrine-cestode systems show the characteristics of non-competitive inhibition. R.T.L.

(578bb) Investigation into the nature and distribution of ether-soluble material in *Hymenolepis diminuta* disclosed that both the type of host and its diet are effective in determining the total fat content of the parasite and the nature of the lipid material present. R.T.L.

(578bc) In male white rats infected with *Hymenolepis diminuta* fasting for 24 hours had a pronounced effect on the glycogen content of the first two or three 10 cm. sections of the worm, but little on the posterior 50 cm. After the rats had been given alloxan the major effect was in the anterior portion; the glycogen level in the first section being raised from a fasting low of about 7 mg. per gm. to over 75 mg. per gm., while the elevation of the glycogen content was progressively less in the more posterior sections. R.T.L.

†Abstract of paper presented at the 30th Annual Meeting, American Society of Parasitologists, Atlanta, Georgia, December 27–30, 1955.



## 578—Journal of Parasitology (cont.)

- †bd. FOSTER, W. B., 1955.—“A comparison of the amino acid constituents and the transaminase activity of *Raillietina cesticillus* and *Hymenolepis diminuta*.” 41 (6, Sect. 2), 30.
- †be. SWEATMAN, G. K., 1955.—“The relation between lesions in lambs and the development of the cysticerci of *Taenia hydatigena* Pallas, 1766.” 41 (6, Sect. 2), 30–31.
- †bf. DAUGHERTY, J. W., 1955.—“Glycogen synthesis in *Hymenolepis diminuta*.” 41 (6, Sect. 2), 31.
- †bg. VOGEL, M., 1955.—“Experimental demonstration of the life cycle of *Hymenolepis citelli* (McLeod, 1933) (Cestoda: Cyclophyllidae).” 41 (6, Sect. 2), 31.
- †bh. OGREN, R. E., 1955.—“Studies in embryology and histology of the robin tapeworm, *Choanotaenia iola* Lincicome (Cyclophyllidae: Dipylidiinae), with description of the meta-chromatic glands in the oncosphere.” 41 (6, Sect. 2), 31–32.
- †bi. WALTON, B. C., 1955.—“The ‘nasal-leech’ *Dinobdella ferox* from Borneo and Malaya.” 41 (6, Sect. 2), 32.
- †bj. BRIGGS, N. T., 1955.—“Precipitates on the larvae of *Litomosoides carinii* in sera of repeatedly infected white rats.” 41 (6, Sect. 2), 35.

(578bd) In preliminary studies on the protein metabolism in *Raillietina cesticillus*, paper chromatography indicated the presence of free amino-acids and related substances, alanine, aspartic acid, citrulline and/or glutamine, glutamic acid, glutathione, glycine, proline, serine, tyrosine and valine. Arginine, cystine, lysine and taurine were not found, but proline was in much greater quantity than in *Hymenolepis diminuta*. The glutamic acid to alanine transaminase system could not be demonstrated and the other three transaminase systems previously found active in *Hymenolepis diminuta* differed quantitatively in *R. cesticillus*. R.T.L.

(578be) Following the administration of 800 *Taenia hydatigena* eggs to lambs, small fibrotic lesions appeared on the surface of the liver in seven days. From the 10th to 25th day there were haemorrhagic streaks, each containing one or two cysts of about 2 mm. in diameter in 12 days and up to 9 mm. in 20 to 25 days. The streaks then healed but some which persisted for nine months contained sterile cysts. In the omentum and liver capsule open pits first appeared 20 days after infection when the number of unattached cysts in the abdominal cavity reached the greatest percentage. By the 34th day cysts with hooks and suckers had appeared for the first time in the abdominal cavity or attached to the omentum, mesenteries or the ligament joining the bile-duct and liver. These cysts now measured 10 mm. or more. In addition to the damage to the liver the cysts caused local peritonitis and fibrotic adhesions. R.T.L.

(578bf) The decline in the rate of glycogen synthesis from glucose and from potassium pyruvate in *Hymenolepis diminuta* which followed upon the castration of the rat host is probably attributable to a secondary set of conditions in the host rather than to any direct effect of the absence of hormone on the parasite. R.T.L.

(578bg) [The full account of this work appears in *J. Parasit.*, 1956, 42, 485–490. For abstract see *Helm. Abs.*, 25, No. 247c.]

(578bh) The oncosphere of *Choanotaenia iola* is composed of somatic cells forming the parenchyma. Squamous epithelial cells at the embryonic posterior were filled with meta-chromatic granules, and later became Reid's penetration glands. R.T.L.

(578bi) Engorged specimens of the leech *Dinobdella ferox* were taken from the nasal passages of *Rattus mülleri* at Ulu Langkat, Malaya. Immature specimens were found in great numbers in streams in areas seldom visited by man or domestic animals. R.T.L.

(578bj) Although it is virtually impossible to demonstrate in white rats any acquired immunity to *Litomosoides carinii* over and above their partial natural immunity yet precipitates form in sera of those repeatedly infected and not in sera of the uninfected. R.T.L.

†Abstract of paper presented at the 30th Annual Meeting, American Society of Parasitologists, Atlanta, Georgia, December 27–30, 1955.

**578—Journal of Parasitology (cont.)**

- †bk. HEALY, G. R., 1955.—“Anomalies in *Fasciola hepatica*.” 41 (6, Sect. 2), 35.  
†bl. STUNKARD, H. W., 1955.—“The life-cycle of *Azygia sebago* Ward, 1910.” 41 (6, Sect. 2), 35.  
†bm. KRUIDENIER, F. J. & STIREWALT, M. A., 1955.—“The gland complex of the cercaria of *Schistosoma mansoni*.” 41 (6, Sect. 2), 35–36.  
†bn. KINGSTON, N. & DeGIUSTI, D. L., 1955.—“The nervous system of some Digenea.” 41 (6, Sect. 2), 36.  
†bo. PETERS, Jr., L. E., 1955.—“Morphology of the adult and the miracidium of a progenetic species of *Allocreadium* from water beetles of the family Dytiscidae.” 41 (6, Sect. 2), 36.  
†bp. LEVINE, N. D., CLARK, D. T. & HANSON, L. E., 1955.—“Encephalitis in a swan due to *Dendritobilharzia* sp.” 41 (6, Sect. 2), 36.  
†bq. McINTOSH, A. & SELF, J. T., 1955.—“*Nematobothrium texomensis* n.sp. from a freshwater fish, *Ictiobus bubalus* (Rafinesque, 1819).” 41 (6, Sect. 2), 36–37.

(578bk) A few specimens of *Fasciola hepatica* from cattle had pycnotic vitellaria. One had neither vitellaria nor testes. A few had the ovarian lobules distributed equally on either side of the middle line and in two the lobes were ventral in position and arranged to form a cross.  
R.T.L.

(578bl) The adults of the asexual stages of *Azygia sebago* reported by Stunkard from *Ammicola limosa* have been found in *Anguilla rostrata*. Planarians and small fishes are paratenic hosts. *Azygia acuminata*, *A. bulbosa*, and *Hassallius hassalli* may be identical with *A. sebago*.  
R.T.L.

(578bm) In the cercaria of *Schistosoma mansoni* the two pairs of pre-acetabular eosinophilic glands are diffusely purpurin-positive and their secretions are present in the glandular discharge of free-swimming and of actively penetrating cercariae. The three pairs of post-acetabular basophilic glands are Schiff-positive. The secretion forms a fine film on the surface of immature cercariae within the sporocyst and continues to discharge during the free-swimming stage. This film is retained through the early stages of penetration, and contributes to the peri-cercarial envelope.  
R.T.L.

(578bn) [This was a demonstration of the morphology of the nervous system of Reni-ferinae and, in part, of *Schistosoma mansoni* and *Spirorchis* sp.]

(578bo) A species of *Allocreadium* unencysted in the body-cavity of the water beetles *Dytiscus fasciventris* and *Acilius semisulcatus* is not only progenetic, laying a large number of eggs, but is also neotenuous as a stylet and eyespots are present. The excretory system pattern is intermediate in complexity between that of *Crepidostomum* spp. and *Allocreadium ictaluri*. The miracidium lacks a stylet and has an epidermal cell formula of 6:6:4:2. An ophthalmoxiphidiocercaria with a stylet, comparable to that of the adult found in the beetles, developed in *Sphaerium occidentala* in a pool where infected fish were absent. This indicated that a vertebrate host is unnecessary to complete the life-cycle.  
R.T.L.

(578bp) [The full account of this work appears in *J. Parasit.*, 1956, 42, pp. 496–500. For abstract see *Helm. Abs.*, 25, No. 247d.]

(578bq) *Nematobothrium texomensis* n.sp., the first didymozoid trematode to be recorded from an American fresh-water fish, was found among the ovaries of *Ictiobus bubalus* taken from Lake Texoma, Oklahoma. It was from 8 to 9 feet in length. Compared with the strongly muscular pharynx, the oral sucker is extremely small and feeble. In this respect it differs from all other species of the genus.  
R.T.L.

†Abstract of paper presented at the 30th Annual Meeting, American Society of Parasitologists, Atlanta, Georgia, December 27–30, 1955.



## 578—Journal of Parasitology (cont.)

- †br. JONES, A. W. & CIORDIA, H., 1955.—“Transfaunation of adult *Hydatigera taeniaeformis* to its intermediate host.” 41 (6, Sect. 2), 37.
- †bs. WARD, H. L., 1955.—“Acanthocephala of the genus *Centrorhynchus* from birds of Egypt.” 41 (6, Sect. 2), 37.
- †bt. SHUMARD, R. F., SCHIPPER, I. A. & EVELETH, D. F., 1955.—“A motor-driven enterotome for the rapid removal of helminths from the gastrointestinal tracts of large mammals.” 41 (6, Sect. 2), 38.
- †bu. SADUN, E. H. & NORMAN, L., 1955.—“Studies on the susceptibility of hamsters to *Trichinella spiralis*.” 41 (6, Sect. 2), 38.
- †bv. GOODCHILD, C. G. & BOODISH, W., 1955.—“Establishment of *Trichinella spiralis* infections in Thiry-Vella fistularized rats.” 41 (6, Sect. 2), 38–39.
- †bw. EHRENFORD, F., BURCH, G. & BUNDE, C., 1955.—“Further observations on phthalofyne as a trichuricide.” 41 (6, Sect. 2), 39.
- †bx. NORMAN, L., 1955.—“The storage and standardization of sera and reagents for the diagnosis of trichinosis by the bentonite flocculation test.” 41 (6, Sect. 2), 39.
- †by. DROPKIN, V. H., 1955.—“Determinations of the phosphorus content of golden nematode and root-knot nematode.” 41 (6, Sect. 2), 39.

(578br) Several weeks after whole strobilae and pieces of *Hydatigera taeniaeformis* were put into the abdominal cavity of non-immune laboratory rats the tapeworms were still mobile and had not undergone marked tissue deterioration. The scolex and neck region were embedded in or on the liver and were encapsulated in connective tissue infiltrated with leucocytes.

R.T.L.

(578bs) Four species of *Centrorhynchus* were collected from birds in Egypt, viz., *C. corvi* from *Corvus corone*, *Centrorhynchus globocaudatus* from *Athene noctua* and two new [not yet named or described] species, one from *Milvus migrans* and the other from *Falco tinnunculus*.

R.T.L.

(578bt) A motor-driven enterotome [not described] capable of rapidly removing gastrointestinal helminths from large animals is said to be extremely useful in survey work or where large numbers of experimental animals are slaughtered.

R.T.L.

(578bu) With increases in size of graded single inoculations of from 125 to 500 *Trichinella spiralis* larvae the percentage of larval development in hamsters decreased. With doses of over 500 the infections overwhelmed the host's resistance and the ratio of developing larvae increased significantly. But with 4,000 larvae the greatest number of worms eliminated took place between the second and third day, while with 8,000 larvae this had already occurred within the first two days. The LD<sub>50</sub> of the hamsters of the age and size used was approximately 850 larvae. The results suggest that lethal infections could be used to determine the degree of resistance in different groups of hamsters.

R.T.L.

(578bv) Excysted *Trichinella spiralis* larvae when implanted deep in a Thiry-Vella fistula in rats extracted sufficient nutrients from the host tissues or tissue secretions to enable them to mature and to reproduce.

R.T.L.

(578bw) The single therapeutic dose of phthalofyne when given intravenously as a vermicide for *Trichuris vulpis* is 1·6 greater than the amount of the oral dose required.

R.T.L.

(578by) *Heterodera rostochiensis* and *Meloidogyne incognita* var. *acrita* were added to sand cultures containing tomato plants labelled with P<sup>32</sup>. The phosphorus content of the nematodes taken at intervals from infected roots was measured by radio-activity. The amount of phosphorus per nematode of both species rose from about 0·0002 μgm. in the second-stage larvae to about 0·1 μgm. in adult females.

R.T.L.

†Abstract of paper presented at the 30th Annual Meeting, American Society of Parasitologists, Atlanta, Georgia, December 27–30, 1955.

## 578—Journal of Parasitology (cont.)

- †bz. SPRENT, J. F. A., 1955.—“The life history of *Toxascaris leonina* in the cat.” 41 (6, Sect. 2), 39–40.
- †ca. SPRENT, J. F. A., 1955.—“The life-history of *Toxocara cati* in the cat.” 41 (6, Sect. 2), 40.
- †cb. SPRENT, J. F. A., 1955.—“The life history of *Ophidascaris filaria* in the carpet snake (*Morelia argus*).” 41 (6, Sect. 2), 40.
- †cc. YOUNG, M. D. & FREED, J. E., 1955.—“The effectiveness of piperazine citrate against intestinal parasites, especially *Ascaris*, in mental patients.” 41 (6, Sect. 2), 40–41.
- †cd. SHUMARD, R. F. & EVELETH, D. F., 1955.—“Piperazine citrate as an anthelmintic in domestic animals.” 41 (6, Sect. 2), 41.
- †ce. SADUN, E. H. & MELVIN, D. M., 1955.—“The value of repeated examinations in the diagnosis of infections with *Enterobius vermicularis*.” 41 (6, Sect. 2), 41.
- †cf. THORSON, R. E., 1955.—“Proteolytic activity in extracts of the esophagus of adults of *Ancylostoma caninum* and the effect of immune serum on this activity.” 41 (6, Sect. 2), 41.
- †cg. THORSON, R. E., 1955.—“The effect of extractions of the amphidial glands, excretory glands and esophagus of adults of *Ancylostoma caninum* on the coagulation of dog's blood.” 41 (6, Sect. 2), 41–42.

(578bz) Cats killed at intervals after being fed with embryonated eggs of *Toxascaris leonina* from *Lynx canadensis* showed second-stage larvae, 0.278 mm. long, in the intestinal wall five days later. Many larvae, 0.333–0.507 mm. long, and some moulting, 0.435–0.471 mm. long, were in the wall and contents of the intestine after seven days. At 11 and 14 days there were many third-stage larvae 0.514–0.643 mm. At 21 days there were moulting larvae 0.613–0.654 mm. and many at the fourth stage. At 28 days the fourth-stage larvae measured 0.650–2.667 mm. and showed sexual differentiation. Eggs first appeared in the faeces at ten-and-a-half weeks. When infected mice were fed to cats, adults were recovered 35 days later.

R.T.L.

(578ca) [The full account of this work appears in *Parasitology*, 1956, 46, 54–78. For abstract see *Helm. Abs.*, 25, No. 125b.]

(578cb) The eggs of *Ophidascaris filaria*, in well aerated cultures, contain the first larval stage and undergo the first moult in ten days. They are then infective to mice. The larvae migrate to the lungs and muscles where after five days the second moult may occur. Third-stage larvae appear in the liver reaching 12 mm. in length in the fourth week, whereas in other tissues they measure only 1.7 mm. When fed with infected mice, the snakes had third-stage larvae in the kidneys, liver and lungs, and after three weeks fourth-stage larvae and adults, still within the fourth-stage cuticle, were found in the stomach wall.

R.T.L.

(578cc) Piperazine citrate in syrup or tablets was equally effective against *Ascaris* infections in mental patients in the dosage of 2 gm. daily for seven and ten days. The action against *Enterobius* was inconsistent. No cure resulted in 38 cases of hookworm, 26 of *Strongyloides* and 39 of *Trichuris*.

R.T.L.

(578cd) Piperazine citrate was effective against *Ascaris lumbricoides* in pigs and *Toxascaris leonina* in dogs. Over 95% of *Ascaridia galli* were removed from poultry within six hours. Continuous use of doses as low as 1,000 mg. per gallon of water were effective in preventing *A. galli* infection.

R.T.L.

(578ce) [This paper appears in full in *J. Pediatrics*, 1956, 48, 438–441. For abstract see *Helm. Abs.*, 25, No. 106b.]

(578cf) [This paper is published in full in *J. Parasit.*, 1956, 42, 21–25. For abstract see *Helm. Abs.*, 25, No. 21e.]

(578cg) [This paper is published in full in *J. Parasit.*, 1956, 42, 26–30. For abstract see *Helm. Abs.*, 25, No. 21g.]

†Abstract of paper presented at the 30th Annual Meeting, American Society of Parasitologists, Atlanta Georgia, December 27–30, 1955.



## 8—Journal of Parasitology (cont.)

- †ch. MELVIN, D. M., SADUN, E. H. & HEIMLICH, R., 1955.—“Evaluation of the reliability of the dilution egg count and the direct smear egg count in the quantitative determinations of hookworm infections.” 41 (6, Sect. 2), 42.
- †ci. DEGIUSTI, D. L., 1955.—“The occurrence of a protostrongylid nematode in the meninges of Michigan deer.” 41 (6, Sect. 2), 42.
- †cj. SHUMARD, R. F. & EVELETH, D. F., 1955.—“Some nutritional and physiological changes taking place in lambs infected with *Haemonchus contortus*, *Trichostrongylus colubriformis*, and *Nematodirus spathiger*.” 41 (6, Sect. 2), 42–43.
- †ck. KATES, K. C. & WILSON, G. I., 1955.—“Effect of two rations differing primarily in protein, carbohydrate and crude fiber content, on experimental haemonchosis in lambs.” 41 (6, Sect. 2), 43.
- †cl. LEVINE, N. D. & CLARK, D. T., 1955.—“The relation of pasture rotation to acquisition of strongyline nematodes by sheep.” 41 (6, Sect. 2), 43.
- †cm. COWAN, A. B., 1955.—“Some preliminary observations on the life history of *Amidostomum anseris* Zeder, 1800.” 41 (6, Sect. 2), 43–44.
- †cn. TWOHY, D. W., 1955.—“The role of the skin and lungs in the development of *Nippostrongylus muris*.” 41 (6, Sect. 2), 44.

(578ch) [A fuller account of this work appears in *Amer. J. Hyg.*, 1956, 64, 139–148. or abstract see *Helm. Abs.*, 25, No. 16ra.]

(578ci) In 46% of 79 Michigan deer a protostrongylid [not named] was found localized in the inner surface of the meninges and widely distributed in the cranial cavity and was associated with an inflammatory reaction and bleeding. None of the worms was fully mature.

R.T.L.

(578cj) Four parasite-free lambs, which had received 100,000 *Trichostrongylus colubriformis* larvae, 40,000 *Haemonchus contortus* larvae and 10,000 *Nematodirus spathiger* larvae, died within 27 days. At autopsy the species and numbers varied greatly. No *Haemonchus* was found in one of the lambs. Blood samples, taken every other day, showed a drop in haemoglobin and haematocrit levels and over 50% fall in that of inorganic phosphorus. Serum albumin decreased consistently and serum globulin increased correspondingly. Blood glucose and total serum protein varied from time to time.

R.T.L.

(578ck) Of six lambs, which had received 15,000 *Haemonchus contortus* larvae each, three were fed with high grade chopped lucerne hay and three with a pellet ration containing lucerne meal 60%, milo maize 30% and molasses 10%. At the end of eleven weeks the latter group showed a better food utilization, higher average haemoglobin levels, lower average egg counts and lower worm counts at autopsy.

R.T.L.

(578cl) A lucerne pasture rotation experiment is briefly reported indicating that while this method of grazing did not prevent lambs from becoming heavily infected with *Haemonchus contortus* it had a striking effect on pasture utilization as the rotated pasture held up throughout the grazing period of 168 days, whereas the control pasture was completely grazed off after 57 days.

R.T.L.

(578cm) The eggs of *Amidostomum anseris* complete their embryonic development at 4°C. but fail to hatch. Canadian geese were infected with larvae from charcoal cultures six days old. Some larvae showed activity after freezing and thawing. In experimentally infected goslings eggs first appeared in the faeces in 14 to 25 days. Infections persisted with diminishing intensity for over 18 months. Worm-free geese, released in November and associating with the wild population during the winter, became infected by March.

R.T.L.

(578cn) Experiments are summarized which indicate that for the development of the larvae of *Nippostrongylus muris*, skin infection is neither essential nor a marked handicap. When injected into the portal vein of rats most of the larvae passed through the liver to the lungs, but those which remained in the liver were capable of developing to adults when fed to other rats.

R.T.L.

Abstract of paper presented at the 30th Annual Meeting, American Society of Parasitologists, Atlanta, Georgia, December 27–30, 1955.

## 578—Journal of Parasitology (cont.)

- †co. LEE, S. H., 1955.—“The morphogenesis of the female reproductive system of *Skrjabinoptera phrynosoma* Schulz, 1927, a gastric nematode of Texas horned toads *Phrynosoma cornutum*.” 41 (6, Sect. 2), 44.
- †cp. SCOTT, J. A., MACDONALD, E. M. & OLSON, L. J., 1955.—“The effect of previous infection on filarial worms transferred from one cotton rat to another.” 41 (6, Sect. 2), 44.
- †cq. OLSON, L. J., SCOTT, J. A. & MACDONALD, E. M., 1955.—“Infection of white rats with the filarial worms of cotton rats.” 41 (6, Sect. 2), 44-45.
- †cr. ANDERSON, R. C., 1955.—“Blackflies (Simuliidae) as vectors of *Ornithofilaria fallisensis* Anderson, 1954.” 41 (6, Sect. 2), 45.
- †cs. ATCHLEY, F. O., HEMPHILL, E. C. & HUNT, D. W., 1955.—“Current status of intestinal parasitism of man in eastern Kentucky.” 41 (6, Sect. 2), 45.
- †ct. ACKERT, J. E. & ROCHA, U. F., 1955.—“Some problems in parasite control in southern Brazil.” 41 (6, Sect. 2), 45.
- †cu. JASKOSKI, B. J., 1955.—“Some helminthological problems in a zoological park.” 41 (6, Sect. 2), 45.
- †cv. REID, W. M., 1955.—“Incidence of poultry parasites under different ecological and geographical conditions in Egypt.” 41 (6, Sect. 2), 45-46.
- †cw. PRICE, D. L. & JACHOWSKI, L. A., 1955.—“Notes on animal filarial parasites in Malaya with special reference to *Macaca cynomolgus*.” 41 (6, Sect. 2), 46.

(578co) In *Skrjabinoptera phrynosoma* the female reproductive system first appears as an oval cell mass which elongates and dichotomizes posteriorly. The position of this cell mass indicates the site of the vulva. An enlarged chamber, called the spermatheca by Lees appears when the ramus reaches about 6.5 mm. The ramus is then differentiated into ovary, oviduct, receptaculum seminis and uterus. The appearance of reproductive ducts before that of the gonads is considered a unique type of morphogenesis.

R.T.L.

(578cp) Seven days after cotton-rats had been infected with *Litomosoides carinii* the developing worms were transferred surgically to cotton-rats which 30 to 50 days previously had received three infections at weekly intervals, and to other previously uninfected cotton-rats as controls. At autopsy 17 days later the worms collected from the controls were not significantly longer than those from the previously infected rats.

R.T.L.

(578cq) Partial immunity to *Litomosoides carinii* is more pronounced in older white rats than in those only a few weeks old. As white rats under cortisone treatment are not less immune to *L. carinii* than similar untreated rats, it is suggested that their immunity may not be a result of the skin reaction of the host.

R.T.L.

(578cr) [The full account of this paper appears in *Canad. J. Zool.*, 1956, 34, 485-525. For abstract see *Helm. Abs.*, 25, No. 204b.]

(578cs) From the examination of the faeces of 2,200 individuals it is estimated that about one-third of the mining and rural population in eastern Kentucky have intestinal worms, principally *Ascaris lumbricoides* and/or *Trichuris trichiura*. It is believed from verbal reports that *Enterobius vermicularis* is highly prevalent.

R.T.L.

(578cv) *Ascaridia galli* causes serious losses and reduced weight gains in poultry in Egypt. Irrigation practices and the manner in which water is used around homes and chicken yards create damp areas favourable to the germination of *Ascaridia* eggs.

R.T.L.

(578cw) In animals collected near Kuantan, Malaya, microfilariae were found in *Gallus* sp., *Geopelia s. striata*, *Canis familiaris*, *Callosciurus prevostii*, *Rattus annandalei*, *R. exulans*, *R. rattus jalorensis*, *Nycticebus coucang* and *Macaca cynomolgus*. Adult filariae were found in the subcutaneous tissues of *G. s. striata* and in the pleural and peritoneal cavities of the three species of rat. There were two species of microfilariae (one of the microfilariae was indistinguishable from the microfilariae of *Wuchereria malayi*) and adults belonging to

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## 578—Journal of Parasitology (cont.)

- †cx. YUTUC, L. M., 1955.—“The extra-corporeal hatching of the eggs of *Trichuris vulpis*.” 41 (6, Sect. 2), 46-47.
- †cy. COKER, C. M., 1955.—“Cellular factors in acquired immunity to *Trichinella spiralis*, as indicated by cortisone treatment of mice.” 41 (6, Sect. 2), 47.
- †cz. FEDER, W. A. & FELDMESSER, J., 1955.—“Further studies on plant-parasitic nematodes maintained in altered oxygen tensions.” 41 (6, Sect. 2), 47.
- †da. PITTS, T. D. & BALL, G. H., 1955.—“Further studies on the *in vitro* culture of the larvae of *Ascaris lumbricoides* suum.” 41 (6, Sect. 2), 47-48.
- †db. JONES, C. A., SWARTZWELDER, J. C. & ABADIE, S. H., 1955.—“On the occurrence of certain high energy phosphate compounds in filariform larvae of *Strongyloides ratti*.” 41 (6, Sect. 2), 48.
- †dc. JONES, C. A., SWARTZWELDER, J. C. & ABADIE, S. H., 1955.—“On the occurrence of glycogen and phosphate esters in filariform larvae of *Strongyloides ratti*.” 41 (6, Sect. 2), 48-49.

*Dirofilaria* in the subcutaneous tissue of *M. cynomolgus*. The larvae which developed in *Mansonia* when fed on infected monkeys and on man could not be distinguished morphologically or by staining characteristics, site in the mosquito, or length of their development. R.T.L.

(578cx) *Trichuris vulpis* eggs were embryonated in tap-water which was replaced after three days by 5 c.c. of Locke's isotonic solution. Three drops of dog bile were added. In this bile-Locke solution, which had a pH of 6.0, 25% of the embryonated eggs hatched. In cultures with bile alone, having a pH of 5.6, and in Locke's solution alone, with a pH of 6.7, the eggs failed to hatch. In tap-water with a pH of 6.8, no hatching took place. R.T.L.

(578cy) Histological study of the cellular reaction to *Trichinella spiralis* of the small intestine of immunized, challenged mice and of the intestinal wall of immunized controls, treated with cortisone to eliminate the cellular reaction prior to the acquisition of acquired immunity, supports the hypothesis that, in mice, the immunity mechanism is primarily due to specific antibodies with a secondary cellular co-operation. The latter is more important than the serological factor in eliminating the worms from the small intestine. R.T.L.

(578cz) The effects of increased oxygen tensions (produced by 400 p.p.m. of sodium sulphite in sealed tap-water) on the motility of *Hoplolaimus coronatus*, *Radopholus similis*, *Belonolaimus gracilis*, *Tylenchulus semi-penetrans* and *Dolichodorus heterocephalus* and the rate of resumption of their motility after aeration of the solution are reported. R.T.L.

(578da) In the medium previously used [for abstract see Helm. Abs., 22, No. 222 di] 36.5% of newly hatched *Ascaris lumbricoides* larvae survived for 32 days and 1.6% for 44 days at 37°C. At 30°C. 82.2% were active on the 32nd day and 6.4% on the 81st day and at 25°C. 65.6% were active on the 32nd day and 20.7% on the 100th day. When the human serum was replaced by pig serum and extract of raw pig liver was added, longevity of the larvae was increased further: 34.8% lived to 40 days and 4.4% to 64 days at 37°C. while 76.2% survived 41 days and 4% for 101 days at 30°C. Larval survival was not affected by the absence of peptone or Fenwick's solution, but yeast extract, glucose and serum were essential. R.T.L.

(578db) Analyses of barium fractionated trichloroacetic acid extracts of filariform larvae of *Strongyloides ratti* consistently showed an average of 260 micromoles of a labile phosphorus indicating the presence of a phosphagen which is presumably arginine phosphate. R.T.L.

(578dc) In the filariform larvae of *Strongyloides ratti* hexose phosphates were found in about 1,500 micromoles per 100 gm. of larvae, the individual esters occurring in the ratio of 8:6:1 and approximately 480 micromoles of 3-phosphoglyceric acid. Lactic acid, apparently the end product, averaged about 460 micromoles per 100 gm. of larvae. After trichloroacetic acid extraction, about 0.5% of the wet weight of the larvae was glycogen. R.T.L.

†Abstract of paper presented at the 30th Annual Meeting, American Society of Parasitologists, Atlanta, Georgia, December 27-30, 1955.

**578—Journal of Parasitology (cont.)**

- †dd. FRICK, L. P. & MOON, A. P., 1955.—“Parasitologic studies in the Far East. XV. A preliminary survey for intestinal parasitism in southern Formosa.” **41** (6, Sect. 2), 49.
- †de. SWARTZWELDER, J. C., MILLER, J. H. & SAPPENFIELD, R. W., 1955.—“The treatment of human helminthiasis with piperazine citrate.” **41** (6, Sect. 2), 49.
- †df. TWOHY, D. W., 1955.—“The early migration and growth of *Nippostrongylus muris* in the rat.” **41** (6, Sect. 2), 49–50.
- †dg. ALICATA, J. E., 1955.—“Effects of sodium borate on swine nodular-worm (*Oesophagostomum dentatum*) infective larvae in soil.” **41** (6, Sect. 2), 50.
- †dh. WALTON, A. C., 1955.—“Parasites of Amphibia.” **41** (6, Sect. 2), 50.

(578dd) Comparison is made of the helminth infections of a group of about 1,100 Chinese Nationalist troops in southern Formosa and a group of 725 young male Taiwanese in the same area. In the Chinese the percentages of infection were: hookworm 78.6%, *Trichuris trichiura* 58.8%, *Ascaris lumbricoides* 19.7% while in the Taiwanese they were: hookworm 93.5%, *Trichuris trichiura* 89.0%, *Ascaris lumbricoides* 72.3%. No instance of *Schistosoma japonicum* occurred in the Taiwanese; nine Chinese cases had apparently contracted their infections on the mainland at least five years previously. R.T.L.

(578de) Piperazine citrate syrup was effectively employed in the treatment of partial intestinal obstruction by *Ascaris*. Success in cases of *Enterobius* and *Ascaris* infections and failures to eliminate *Strongyloides*, *Trichuris* and *Hymenolepis nana* are reported. R.T.L.

(578df) [The full account of this paper appears in *Amer. J. Hyg.*, 1956, **63**, 165–185. For abstract see *Helm. Abs.*, **25**, No. 5b.]

(578dg) When soil, in which were baskets each containing about 10,000 viable larvae of *Oesophagostomum dentatum*, was sprayed once daily with water containing the sodium borate product, Polybor-3, at the rate of five pounds per 100 sq. ft. the number of larvae recovered 20 days after treatment averaged 471 as compared with 5,228 recovered from untreated controls. R.T.L.

(578dh) Five trematodes, three cestodes, six nematodes and three acanthocephalans with their hosts and geographical regions are added to Walton's earlier lists of the parasites of Amphibia. R.T.L.

**579—Journal of Pathology and Bacteriology.**

- a. HOU, P. C., 1955.—“The pathology of *Clonorchis sinensis* infestation of the liver.” **70** (1), 53–64.

(579a) Hou presents an extensive and detailed study, illustrated with numerous photographs and photomicrographs, of the liver in 500 cases of clonorchiasis. He concludes (i) that it is a chronic disease, often complicated by bacterial infection, (ii) that the complications are usually initiated by blockage of the ducts, (iii) that in uncomplicated cases the pathological changes are confined to the walls of the bile-ducts, (iv) that the pathological changes in complicated cases include the formation of adenomatous tissue and intrahepatic calculi, cholangitis, cholangio-hepatitis and multiple abscess formation, (v) that malignant change in the adenomatous tissue is one of the most serious consequences, (vi) that there is no direct relationship between the presence of *Clonorchis sinensis* and multilobular cirrhosis, (vii) that the trematode feeds on glucose and protein from the peri-biliary plexus, but not on erythrocytes, and mucus secreted by the epithelium, (viii) that the infestation causes dilatation of the intrahepatic portal veins, and (ix) that squamous cell metaplasia of the pancreatic ducts is a common result of their invasion. These changes, observed in human cases, differ somewhat from those in the small laboratory animals. S.W.

†Abstract of paper presented at the 30th Annual Meeting, American Society of Parasitologists, Atlanta, Georgia, December 27–30, 1955.



**580—Journal of the Royal Army Medical Corps.**

- a. CRONK, P. G., 1955.—"A note on 100 cases of helminthiasis with special reference to eosinophilia." 101 (3), 254-256.

(580a) Of 100 patients, mostly Mauritians, with various helminth infections, between 70 and 75 showed eosinophilia in varying degrees. 54 of the 77 cases of hookworm infection showed significant eosinophilia. Cronk points out that in the Middle East anthelmintic treatment can be very rewarding in many cases which would be diagnosed as hysteria, functional dyspepsia, dysentery or neurosis in the United Kingdom. S.W.

**581—Journal of the Tennessee Academy of Science.**

- a. NAJARIAN, H. H., 1955.—"Notes on aspidogastroid trematodes and Hydracarina from some Tennessee mussels." 30 (1), 11-14.  
 b. CIORDIA, H., 1955.—"*Mesocestoides jonesi*, n.sp., from the gray fox, with descriptions of the chromosome complement and a dicephalic specimen." 30 (1), 57-63.  
 c. RISER, N. W., 1955.—"Studies on cestode parasites of sharks and skates." 30 (4), 265-311.

(581a) Najarian tabulates the number of aspidogastroid trematodes collected by him from *Anodonta grandis*, *Ligumia subrostrata* and *Uniomereus tetralasmus*. All were young adults of *Cotylaspis insignis* (?) Leidy, 1857. R.T.L.

(581b) *Mesocestoides jonesi* n.sp. obtained from a grey fox *Urocyon cinereoargenteus* in Knox County, Tennessee, resembles *M. manteri* in the formation of the paruterine organ and in most other characters but it is smaller (5.5 mm.-12 mm.) the last segment being 0.38 mm.-0.47 mm. The scolex and neck are narrower, the testes number 24 to 32, are close together and are arranged in two irregular rows encircling the longitudinal canals. Moreover, it has only one, bilobed, vitelline gland. R.T.L.

(581c) According to Riser the cestodes diverge along two lines, viz., (i) those which have three larval stages but without embryonic hooks in the infective larva and (ii) those with two larval stages and with embryonic hooks in the infective larva. These two basic groups are considered to be superorders. The first group is named *TRIXENIDEA* nov., the second group *DIXENIDEA* nov. In *TRIXENIDEA* the vitellaria are follicular or paired lateral tubules or there is a ventral vitellarium. The common vitelline duct extends behind Mehlis' gland. In *DIXENIDEA* there is a dorsal vitellarium. The common vitelline duct extends anterior to Mehlis' gland or to union with the fertilization passage. Riser recognizes three orders in *TRIXENIDEA*, viz., *Tetraphyllidea*, *Pseudophyllidea* and *Trypanorhyncha*. *Tetraphyllidea* contains four superfamilies, viz., (i) *Phyllobothrioidea* (*Phyllobothriidae*, *Onchobothriidae* and *Echeneibothriidae* nov.), (ii) *Lecanicephaloidea* (*Lecanicephalidae*, *Cephalobothriidae*, *Balanobothriidae*, *Disculicipitidae* and *Echinobothriidae*), (iii) *Proteocephaloidea*, and (iv) *Tetrabothrioidea* nov. (= *Tetrabothridea* Baer, 1954). *DIXENIDEA* contains one order *Cyclophyllidea*. A new superfamily *Echeneibothriidae* is created for those species in which the phyllidea of the adults and plerocercoids are multiloculate. A new genus of *Onchobothriidae* named *Pinguicollum* n.g. is made for *Onchobothrium pinguicollum* Sleggs, 1927. It differs from *Acanthobothrium* and *Unicibilocularis* in having a pseudosucker. The hooks are fused in a common matrix. Riser gives systematic accounts of 29 species, including 11 new species of *Tetraphyllidea* from sharks and skates, illustrated by 76 figures on nine plates. *Echeneibothrium octorchis* n.sp. from *Raja montereyensis* is distinguished by the small size of the strobila which consists of about 25 proglottides and by the number of testes (seven to nine, usually eight). *E. dolichoophorum* n.sp. from *Raja rhina* differs from *E. octorchis* in having 11 to 13 testes, the last 17 to 19 proglottides containing testes, the ovary is long and narrow. *E. macrascum* n.sp. from *Raja montereyensis* is distinguished by the rudimentary nature of the myzorhynchus and the attachment of the pedicels to the posterior borders of the phyllidea. *Caulobothrium tetrascaphium* n.sp. from *Aetobatus californicus* is a large apolytic cestode, over 20 cm. in length, and consisting of several hundred proglottides. It differs from *C. tobijei*

in the size of the scolex, strobila and proglottides. The bothridial surface is divided by ten transverse and one longitudinal ridge into 22 loculi. Each proglottis contains over 200 testes and these are almost all enclosed by the vitellaria. *C. opisthorchis* n.sp. from *Aetobatus californicus* is hyperapolytic and differs from the other species in the extension of the testes to behind the ovary. The excretory ducts are marginad of the vitellaria. *Acanthobothrium hispidum* n.sp. from *Tetronarce californica* is most closely allied to *A. benedeni* but the strobila reaches 85 mm. in length, the testes number 47 to 52 in each segment, the cirrus pouch is 0.25 to 0.3 mm.  $\times$  0.13 to 0.24 mm. and the proportions of the hooks are distinctive. *A. maculatum* n.sp. from *Aetobatus californicus* is very like *A. dasybati* but the testes number only 75 to 85 and the hooks have a longer handle and the inner and outer prongs are of almost equal length. *A. brachyacanthum* n.sp. in *Raja montereyensis* differs from all other species of the genus, for the hooks are less than 0.12 mm. in length. *Calliobothrium pellucidum* n.sp., from *Mustelus californicus*, is similar to *C. eschrichi* but there are only 34 to 39 testes in each segment, the length of the large outer hooks is 0.135 mm. and that of the inner hooks 0.09 mm. *Cylindrophorus posteroporus* n.sp., from *Prionace glauca*, differs from all other members of the genus in that none of the 65 to 75 testes is posterior to the cirrus pouch on the poral side. The specimens from *Galeus glaucus* identified by Linton in 1924 as *Platybothrium cervinum* belong to this new species. *Inermiphyllidium brachyascum* n.sp. from *Aetobatus californicus* differs from *I. pulvinatum* in having only 110 to 130 testes in each segment, the spines on the cirrus are densely packed, the ovary in mature proglottides is 0.27 to 0.45 mm.  $\times$  0.75 to 1.02 mm., there is neither inner nor outer muscular ring in the phyllidia. Both *Taenia rosaeformis* MacCallum and *T. quadribothria* MacCallum were flattened specimens which Baer recently identified as *Rhinebothrium rankini*. Emendations are made to the definitions of the superfamily Lecanicephaloidea Southwell, 1930; the families Disculicipitidae Joyeux & Baer, 1936 and Onchobothriidae Braun, 1900; and the genera *Phyllobothrium* van Beneden, 1850; *Anthobothrium* van Beneden, 1850; *Scyphophyllidium* Woodland, 1927; *Dinobothrium* van Beneden, 1850; *Echeneibothrium* van Beneden, 1850; *Acanthobothrium* van Beneden, 1850; *Prosobothrium* Cohn, 1902; and *Cylindrophorus* Diesing, 1863. The following species are transferred from other genera: *Cylindrophorus hypoprioni* (Potter, 1937) n.comb. from *Platybothrium*, *Inermiphyllidium pulvinatum* (Linton, 1890) n.comb. from *Anthobothrium*, *Pinguicollum pinguicollum* (Sleggs, 1927) n.comb. and *P. tortum* (Linton, 1916) n.comb. from *Onchobothrium*, *P. incognita* (MacCallum, 1921) n.comb. from *Taenia*, *Prosobothrium adherens* (Linton, 1924) n.comb. from *Ichthyotaenia* and *Scyphophyllidium angustum* (Linton, 1889) n.comb. from *Orygmatobothrium*.

R.T.L.

### 582—Karakulevodstvo i Zverovodstvo.

- a. KADENATSII, A. N., 1955.—[A new agent causing 'staggers' in sheep.] 8 (6), 53–54. [In Russian.]

(582a) "Staggers" caused by *Setaria marshalli* infections was observed on a sheep farm. 10% of the animals had their heads twisted to one side, others suffered also from paresis of the pelvic limbs, weakness of the sacrum and a staggering walk, the more severe cases falling to the ground and kicking their legs but unable to rise. In some, general sluggishness and indifference to their food and surroundings resulted in death two to three weeks after the first appearance of symptoms. 70–75% of the less severe cases partially recovered. On autopsy of two sheep, *Setaria* were found under the cerebral membrane. Diagnosis is made difficult by the similarity of the symptoms to those of coenuriasis and oesteriasis, but the seasonal character of setariasis, i.e. its occurrence in August and September, should be taken into account. Kadenatsii has experimentally determined that the intermediaries are *Culex pipiens* and *Aedes* sp., that the *Setaria* larvae moult twice within 32 to 35 days in the mosquito and can then infect the final host, becoming adult in eight to ten months. In experimentally infected lambs and kids *Setaria* were found in the brain and the abdominal cavity, but only in the abdomen in calves.

G.I.P.



**583—Khirurgiya. Moscow.**

- a. BAZIYAN, R. A., 1955.—[Treatment of echinococcosis of the parenchymatous organs.] Year 1955, No. 12, pp. 61–62. [In Russian.]
- b. BAKHMANOV, K. D. & DOKUCHAEVA, N. F., 1955.—[A large aneurysm of the descending aorta simulating a hydatid cyst of the left lung.] Year 1955, No. 12, pp. 66–67. [In Russian.]

**584—Kinderärztliche Praxis.**

- a. ROMATOWSKI, H., 1955.—“Atebrin als Bandwurmmittel im Kindesalter.” 23 (5), 208–209.

(584a) Romatowski has used atebrin in the treatment of *Taenia saginata* infection in children. The dosages were: children up to two years, 0.2 gm.; 3–9 years, 0.4 gm.; older children, 0.6 to 0.7 gm., administered by duodenal sound in 100 c.c. of warm water. Although all the children had previously been unsuccessfully treated with other drugs all the worms were eliminated, complete with scolex, in most cases within a few hours. A.E.F.

**585—Klinicheskaya Meditsina. Moscow.**

- a. PLOTNIKOV, N. N., 1955.—[The clinical features, pathogenesis and treatment of *Diphyllobothrium anaemia*.] 33 (7), 38–43. [In Russian.]
- b. VOLKOV, L. F., 1955.—[Functional disturbances of the stomach and duodenum in helminthic invasions.] 33 (7), 90. [In Russian.]
- c. KONOVALOV, Y. S., 1955.—[The detection of echinococcosis of the pancreas.] 33 (11), 64–65. [In Russian.]

(585a) This paper is mainly a summary of the literature on *Diphyllobothrium anaemia* in man. G.I.P.

**586—Kurume Medical Journal.**

- a. YOSHIKUMI, Y., KURODA, I., WATANABE, H. & ODA, T., 1955.—“Further observations of schistosomiasis japonica by needle biopsy of the liver (fresh liver slide method).” 2 (1), 63–75.

(586a) Further data are tabulated which confirm the great advantage of Yoshikumi's fresh liver slide method over microscopical examination of the faeces in the diagnosis of schistosomiasis japonica. Of 113 residents in an infested area 68 cases were diagnosed by this method and in only 13 of these were eggs detected in the faeces. The method is recommended when patients from infected areas suffer from fever accompanied by indefinite symptoms. (Ten of the 68 cases tabulated have already been put on record by Yoshikumi in 1954.) R.T.L.

**587—Lancet.**

- a. BLACK, D. A. K., 1955.—“Longevity in a tapeworm?” [Correspondence.] Year 1955, 2 (6883), 253.
- b. WATSON, K. C. & LAURIE, W., 1955.—“Cerebral coenuriasis in man.” Year 1955, 2 (6904), 1321–1322.

(587a) Black reports that a woman employed as a cook has been passing segments of *Taenia saginata* intermittently for fifteen years. He is of the opinion that “since she cooks for people and not for cattle, she is not a danger to the public health”. R.T.L.

(587b) Cerebral *Multiceps multiceps* coenuriasis in two Bantu natives is reported from Edendale Hospital, Pietermaritzburg, South Africa. R.T.L.

**588—Leaflet. Ministry of Agriculture, Northern Ireland.**

- a. ANON., 1955.—“Potato root eelworm.” No. 117, 4 pp. [Revision of 1953 Leaflet.]

**589—Magyar Állatorvosok Lapja.**

- a. HOLLÓ, F., 1955.—“Adatok a juhok gócos tüdőférgességének hazai elterjedtségéhez.” [Lungworm infestation in sheep in Hungary.] 10 (2), 46–50. [English & Russian summaries pp. 49–50.]

**590—Médecine Tropicale.**

- a. DODIN, A., 1955.—“Parasitoses intestinales et avitaminoses C.” 15 (3), 322–328.  
 b. CAUBET, P., MILETTO, G., RUZIÉ, J. & BOUBÉ, G., 1955.—“Aspects médicaux des bilharzioses viscérales disséminées. A propos de deux observations.” 15 (4), 430–436.  
 c. PÉTARD, P., 1955.—“Protidémie et lipémie chez 26 Noirs africains atteints d'onchocercose.” 15 (4), 462–467.  
 d. PIGANIOL, G., HERVÉ, A., CHARTRES, A., & GUILBAUD, 1955.—“Les aspects cliniques de la bilharziose urinaire d'après 50 observations.” 15 (5), 519–535.

(590a) From a study of European and native schoolchildren in Madagascar, Dodin concludes that *Ascaris* (and other intestinal parasites) destroy the intestinal vitamin C. The paper is illustrated by five tables. S.W.

(590c) *Onchocerca volvulus* infection does not apparently affect the lipid metabolism, the serum lipid and cholesterol concentrations remaining almost normal. The serum protein is, however, affected there being a rise in total protein; this is due to an increase in globulins which is sometimes accompanied by a diminution in albumins. S.W.

**591—Mededelingen. Directeur van de Tuinbouw. 's-Gravenhage.**

- a. KLINKENBERG, C. H., 1955.—“Schadelijke aaltjes in aardbeien.” 18 (7), 458–462.

(591a) The author describes the symptoms in strawberries of diseases caused by leaf eelworms (*Aphelenchoides* spp.), stem eelworms (*Ditylenchus* sp.) and root rot eelworms (*Pratylenchus penetrans*). The various methods of control are reviewed. Some control of black root rot has resulted from applications of nematicides to the soil. M.T.F.

**592—Mededelingen van het Instituut voor Rationele Suikerproductie.**

- a. OUDEN, H. DEN, 1955.—“Het bietencystenaaltje en zijn bestrijding. III. Lokplanten onderzoek.” 24 (4), 141–155. [English & French summaries pp. 153–155.]

(592a) Den]Ouden found that whilst root excretions from *Hesperis matronalis* stimulated larvae of the beet eelworm, *Heterodera schachtii*, to emerge from cysts, this plant was not a host of the eelworm. In green-house experiments the rate of larval emergence was double that in control pots containing neutral plants. H.R.W.

**593—Medical Journal of Australia.**

- a. BEARUP, A. J., 1955.—“A schistosome larva from the marine snail *Pyrazus australis* as a cause of cercarial dermatitis in man.” 42nd Year, 1 (26), 955–960.

(593a) Bearup describes and gives drawings of *Cercaria variglandis pyrazi* n.subsp., a fork-tailed cercaria which occurs in *Pyrazus australis* in Narrabeen Lake and which has been shown to be capable of causing dermatitis in man. The new subspecies is differentiated from *C. variglandis* by slight differences in the length of the tail stem and furcae. Exposures of budgerigars, young pigeons and young *Larus novae-hollandiae* to cercariae were not at first successful but subsequently adult schistosomes were recovered; these are provisionally identified as *Austroilharzia terrigalensis*. S.W.



**94—Meditsinskaya Parazitologiya i Parazitarnie Bolezni. Moscow.**

- a. OVNATANYAN, K. T., 1955.—[Intestinal occlusion due to ascariasis.] **24** (4), 291-295. [In Russian.]
- b. GERBILSKI, V. L., 1955.—[Pathological changes of the intestinal wall following its occlusion by a mass of ascarids (*Toxocara canis*).] **24** (4), 295-297. [In Russian.]
- c. SEMENOVA, N. E., TURCHINS, M. E. & KROTOV, A. I., 1955.—[The treatment of enterobiasis and ascariasis in man with piperazine. (Preliminary note).] **24** (4), 298-300. [In Russian.]
- d. BERKHINA, R. A., 1955.—[Experimental treatment with oxygen of trichuriasis in man.] **24** (4), 300-301. [In Russian.]
- e. PASHUK, V. P., 1955.—[The treatment of ascariasis in man with citral.] **24** (4), 302-306. [In Russian.]
- f. DADIANI, E. N. & URUSHADZE, M. S., 1955.—[A comparative evaluation of the various methods of treatment of taeniasis in man.] **24** (4), 306-308. [In Russian.]
- g. ZAPOLSKAYA, A. N., KURDINA, A. A., MALININA, K. N., PANFEROVA, E. A. & SHEKHTMAN, E. M., 1955.—[The relation of dysentery to hymenolepidiasis.] **24** (4), 308-310. [In Russian.]
- h. SHEVKUNOVA, E. A., 1955.—[Some data on the biology of feeding of the horse leech, *Limnatis nilotica* (Savigny, 1820).] **24** (4), 346-351. [In Russian.]
- i. ZAK-LEPSKAYA, R. I., KOVALEVA, V. M. & MILYAVSKAYA, T. M., 1955.—[Organized work on the control of helminthiasis in Kharkov.] **24** (4), 357-362. [In Russian.]
- j. SELIVANOV, K. P., 1955.—[Method of control and elimination of enterobiasis in children's institutions.] **24** (4), 362-363. [In Russian.]

(594c) The treatment of ascariasis with 1 gm. of piperazine adipate for adults, twice daily for two to three days, and less according to age for children, resulted in the passing of worms by 16 out of 39 adults. No eggs were found in 26 of 33 control faecal examinations. For enterobiasis the same dose given in two to three cycles of treatment at three to five-day intervals cured 19 out of 23 adults and nine out of ten children. Nausea, heartburn and flow of saliva were observed in four cases. Piperazine adipate is recommended against enterobiasis and in those cases of ascariasis where other anthelmintics are inadvisable. It is ineffective against *Trichuris* and *Hymenolepis*.  
G.I.P.

(594d) Oxygen was applied in 110 cases (83 were under 14 years old) with *Trichuris* infections of low intensity. Half-an-hour after an enema, 1,500 ml. of oxygen were intubated 25-30 cm. deep into the rectum, with intervals of two to three minutes after every 100-200 ml. Children received 100 ml. per year of age. The patients rested for two hours after the intubation. Stomach-ache lasting a short time was experienced in a few cases. The treatment was repeated on three successive days and was 52% efficient.  
G.I.P.

(594e) Cure was achieved in 19 out of 60 boys with ascariasis who received 120 tablets, each containing 0.005 c.c. of citral, or 1,200 drops of a 2% alcoholic citral solution over two eight-day periods with a two-day interval and a laxative on the eighth day. The citral was not toxic. The majority of worms were passed on the fourth to ninth day. When, for comparison, a further 60 boys were treated with 0.6 gm. of santonin, given over two days and followed by a laxative, 36 were cured and the majority of worms passed on the second to fourth day. The author considers the lower efficacy of citral to be compensated for by the disappearance of clinical symptoms even when it does not cure.  
G.I.P.

(594f) Acrichin in doses of 0.8-1.2 gm. (0.2 gm. every 10 minutes) was given to 275 patients on an empty stomach and followed in 90 minutes by a laxative. All nine *Taenia solium* cases were cured, while of 266 *Taeniarhynchus* [*T. saginata*] cases 166 passed one to four worms with scolices, 97 without scolices and 12 gave no results. The best results were obtained with the 1.2 gm. dose and when the anthelmintic was taken with 3% soda water. In 27 nausea and vomiting occurred. The use of male fern extract is restricted owing to its toxicity as compared with acrichin, while bark extracts of *Punica granatum* are not available in sufficiently large amounts for mass treatment.  
G.I.P.

(594g) *Hymenolepis nana* infection was found to be comparatively wide-spread in homes for children. In the 15 homes examined it varied from none to 50%. Treatment showed the actual infection to be even higher. The homes in which infection was high were those containing children suffering or just recovering from chronic dysentery. The infection was absent in children up to one year old, insignificant in those one to two years old and then increased progressively with age. G.I.P.

#### 595—Medizinische. Stuttgart.

- a. SCHMIDT, J., 1955.—“Erfahrungen mit Uvilon bei der Behandlung der Oxyuriasis Erwachsener. Vorläufige Mitteilung.” Year 1955, No. 19, pp. 718–719.
- b. GOETERS, W. & NORDBECK, S., 1955.—“Zur Behandlung der Oxyuriasis im Kindesalter. Weitere Erfahrungen mit Uvilon.” Year 1955, No. 41, pp. 1449–1450.
- c. GRÜNINGER, Ü., HOLZ, A. & PIENING, A., 1955.—“Erfahrungen mit dem neuen Wurmmittel Tasnon.” Year 1955, No. 47, pp. 1647–1648.

(595a) When 30 men with *Enterobius* infections were given doses of 1 mg. of piperazine hydrate in 5 c.c. of a prepared solution three times daily for seven days, only six relapsed or remained infected and these were cured after a second course of treatment. Ten untreated controls remained positive. M.MCK.

(595b) Goeters & Nordbeck have treated 243 children for enterobiasis with the piperazine preparation Uvilon (Bayer). A single dose of 1 gm. piperazine per day for children under two, 2 gm. for children aged three to five and 3 gm. for children over six was given for periods of two, three, four or seven days; some children were given two doses daily for two, three or four days. Best results (94.8% efficacy) were obtained with a single daily dose given on four successive days. Except in the case of four nervous children, in whom two doses daily caused vomiting, Uvilon was exceptionally well tolerated. In 16 of the children an unsuspected *Ascaris* infection was also cleared up. A.E.F.

(595c) Grüninger *et al.* have used Tasnon (Troponwerke), a piperazine citrate preparation, against helminths in children. For pre-school children the dosage was one teaspoonful (835 mg. piperazine) twice a day, and for schoolchildren one teaspoonful three times a day, in both cases for seven days. The substance has a pleasant taste and was willingly taken by the children: there were no side effects. Against *Ascaris*, Tasnon was successful in 38 out of 40 cases, against *Enterobius* in 162 out of 180, and against *Trichuris* in eight out of 16. A.E.F.

#### 596—Medizinische Monatsschrift. Stuttgart.

- a. MÖSSMER, A., 1955.—“Über die derzeitige Häufigkeit der Oxyuriasis in München und ihre Behandlung.” 9 (9), 609–611. [English summary p. 611.]
- b. LÖW, J., 1955.—“Zur Behandlung von Oxyuriasis und Ascariasis im Kindesalter.” 9 (11), 753–754. [English summary p. 754.]

(596a) Mössmer reports that of 849 Munich children examined by the cellophane tape method 251 (29.6%) were positive for *Enterobius*. A similar survey in 1948 had shown 69.2% positive. Piperazine adipate (in the form of Vermicomprent tablets) was given in a dosage of 0.2 gm. daily per year of life for seven days, repeated after a week's interval, and was 95.6% efficacious. A.E.F.

(596b) Löw reports that Nematolyt has proved very successful in treating nematode infections in children. Of 149 children treated for *Enterobius*, 144 were cured after a single course of treatment and the remaining five after a second course. Of 68 with *Ascaris* infection, 66 were cured after one treatment and the remainder after a second. A laxative should be given the day after treatment. A.E.F.



**597—Memoirs of the Faculty of Agriculture, Hokkaido University.**

- a. YAMASHITA, J., ONO, Z., TAKAHASHI, H. & HATTORI, K., 1955.—[On the occurrence of *Echinococcus granulosus* (Batsch, 1786) Rudolphi, 1805 in the dog in Rebun Island, and the discussion about the course of infection of the echinococcosis.] 2 (3), 147-150. [In Japanese: English summary p. 150.]
- b. YAMASHITA, J., NAGATA, T. & WATANABE, M., 1955.—[Epidemiologic survey of parasites of domestic animals in Hokkaido. IV. A survey of fascioliasis of cattle and sheep.] 2 (3), 151-157. [In Japanese: English summary p. 157.]
- c. YAMASHITA, J. & NISHIDA, H., 1955.—[On the occurrence of *Isoparorchis trisimilitubis* Southwell in the muscle of *Ofhicephalus argus* (Cantor).] 2 (3), 160-163. [In Japanese: English summary pp. 162-163.]

(597a) Adult *Echinococcus granulosus* have only now been found in dogs in Rebun Island, off the northern end of Hokkaido, although one per cent of the inhabitants of the island have hydatid.  
R.T.L.

(597b) According to Hokkaido slaughterhouse statistics 1% to 3% of the livers of sheep were infected with *Fasciola hepatica* but faecal examinations and intradermal tests by Ono's method in 17 different districts gave a remarkably different result. The average infection in cattle was 6% and in sheep 17.9%. In cattle in Teshio district it was 33.3% by faecal examination was 28.4% by intradermal reaction. In Akkeshi district the highest average (60%) occurred. In Hokkaido the intermediate host *Limnaea ollula* has been found at Oshamanbe, Abuta, Date, Mitsuishi and Teine.  
R.T.L.

(597c) Immature forms of *Isoparorchis trisimilitubis* have been found in the muscles of *Ofhicephalus argus* from Lake Shinji, Shimane Prefecture, Japan. This fish is a new host for this fluke.  
R.T.L.

**598—Memorias do Instituto Oswaldo Cruz.**

- a. DIAS, E. & DAWOOD, M. M., 1955.—"Preliminary trials on the biological snail control with *Bacillus pinottii* in Egypt." 53 (1), 13-29. [Portuguese summary pp. 27-28.]

(598a) [The information contained in this paper is essentially the same as that which appears in *J. Egypt. publ. Hlth Ass.* For abstract see No. 573a above.]

**599—Memorias de la Sociedad de Ciencias Naturales La Salle.**

- a. DÍAZ UNGRÍA, C., 1955.—"Cestodes de Venezuela. I.—Especies señaladas hasta la fecha." 15 (42), 189-244.

(599a) Díaz Ungría brings together in alphabetical order and lists under hosts 24 species of cestodes and their larvae reported from Venezuela from one reptilian and 18 mammalian species including man. As he has received badly preserved specimens he reiterates the methods of collecting, fixing and staining cestodes. He reviews the synonyms, morphology and vertebrate hosts of each species and in many cases gives its distribution in Venezuela.  
M.MCK.

**600—Memorias de la Sociedad Cubana de Historia Natural "Felipe Poey".**

- a. PÉREZ VIGUERAS, I., 1955.—"Descripción de *Bianium lecanocephalum* n.sp. (Trematoda, Lepocreadiidae), parásito de *Osbeckia scripta* (Pisces)." 22 (2), 191-194.
- b. PÉREZ VIGUERAS, I., 1955.—"Contribución al conocimiento de la fauna helmintológica cubana." [Continuation.] 22 (2), 195-233.

(600a) *Bianium lecanocephalum* n.sp. from the fish *Osbeckia scripta* from the northern coast of Habana is figured and differentiated from the three known species by the absence of ovulation of the ovary and the relatively large size of the ventral as compared with that of the oral sucker.  
R.T.L.

(600b) Continuing his account of the helminth fauna of Cuba, Pérez Vigueras adds, from the literature, 20 more trematode species with notes or descriptions and 18 illustrations. For abstract of the first part of this paper see *Helm. Abs.*, 24, No. 259a.]  
M.MCK.

**601—Mikrokosmos.**

- a. REICHENBACH-KLINKE, H.-H., 1955.—“Muskelcercarien aus einen Zwergfadenfisch (*Colisa lalia*).” 45 (4), 81-84.

(601a) Reichenbach-Klinke describes and figures metacercariae recovered from numerous specimens of the anabantid fish, *Colisa lalia*. The position of the suckers, the genital pore and the testes, and the body size, make it most probable that this trematode belongs to the Clinostomatidae, although generic or specific diagnoses are not attempted. The fact that *C. lalia* lives in shallow waters and ponds points to water-birds as the most likely definitive hosts.

A.E.F.

**602—Monatshefte für Tierheilkunde.**

- a. SCHOOP, G., 1955.—“Gibt es latenten Trichinenbefall unter der deutschen Bevölkerung? Untersuchung von 304 menschlichen Leichen.” 7, 269-275.

(602a) In this, the first search by autopsy for evidence of subclinical trichina infections in Germany, the diaphragms of 304 bodies from different localities were examined by the compressorium technique, portions of diaphragm muscle from 100 of the cases were digested and diaphragm samples from another 50 of the bodies were fed to rats. No infections were found, showing that at least 98.498% of the German population are presumably free from trichinae. This figure compares very favourably with the incidence in countries where there is no compulsory inspection of pork.

M.MCK.

**603—Monatshefte für Veterinärmedizin.**

- a. GAEDTKE, 1955.—“Beitrag zu Finnenfunden bei Saugkälbern.” 10 (3), 56-57.  
 b. HIEPE, T., 1955.—“Zur Technik der Herdenbehandlung bei Magenwurmbefall der Schafe.” 10 (13), 294-296.  
 c. WINTER, 1955.—“Parasiten und Tumorbildung.” 10 (14), 326-329.  
 d. HOHNER, L., 1955.—“Bemerkenswerte Finnenfunde in einem Sumpfbiber.” 10 (14), 330-331.

(603a) Gaedtker reviews early records of cestode larvae recovered from suckling calves and records two cases seen at the Nordhausen abattoir in 1954. In both animals cysts were wide-spread throughout the whole of the body musculature, and in one case were in a calcified state even in the lungs and liver. The paper is illustrated with two photomicrographs.

A.E.F.

(603b) Hiepe has devised a successful technique for the mass treatment of sheep with phenothiazine against stomach worm disease. Phenothiazine A (prepared by Heyden, Leipzig) is suspended in an equal quantity of water and given orally by means of a “Janet” drenching gun. Sheep swallow the suspension without difficulty or after effects. The treatment should be given in the stall: with two helpers to hold the sheep, a veterinary surgeon can treat 150 to 200 sheep in an hour. By this method ten flocks containing a total of 2,600 sheep have been successfully treated. It is essential that sheep should be well nourished after treatment and that proper stall and pasture hygiene measures be adopted.

A.E.F.

(603c) In the course of his survey of “tumours” of parasitic origin in man and animals Winter gives many examples in which helminth infections lead to the formation of “growths” of various kinds. These include cysticercus sarcoma in rats, *Schistosoma* carcinoma in man, worm aneurysms in horses, proliferation of the bile-duct epithelium in *Opisthorchis felinus* infection, hydatid in man and animals etc. Most of the growths are the result of host reactions to the parasite.

A.E.F.

(603d) Hohner records the recovery of two *Cysticercus fasciolaris* and seven *C. talpae* from the liver of a male nutria.

A.E.F.



**604—Monthly Agricultural Report. Ministry of Agriculture, Northern Ireland.**

- a. ANON., 1955.—“Liver fluke disease. Risk of serious outbreaks.” 30 (5), 134-137.

(604a) In the autumn of 1954 over 85% of the animals passing through an abattoir in Northern Ireland showed evidence of liver-fluke infestation and in one county alone over £600 worth of liver had to be condemned as unfit for human consumption during November. The abnormal rainfall that year resulted in extremely large numbers of the snail vectors being present in the pastures.

R.T.L.

**605—Münchener Medizinische Wochenschrift.**

- a. BURGSTEDT, H. J., 1955.—“Über die anthelminthische Wirkung von Piperazin-zitrat bei Oxyuren und Askariden.” 97 (16), 531-534.  
 b. AMBOS, K., 1955.—“Über eine Vergiftung mit einem Piperazin enthaltenden Wurmelixier.” 97 (35), 1157.  
 c. BERGSTERMANN, H., 1955.—“Zur Frage der Toxizität piperazinhaltiger Wurmheilmittel.” 97 (48), 1622. [English & French summaries p. 1622.]

(605a) One hundred and fifteen cases of *Enterobius* infection and sixty-two cases of *Ascaris* infection in children were treated with a piperazine elixir. The daily dosage was usually 80 mg. per kg. body-weight to a maximum daily dose of six teaspoonfuls. In seven of the *Enterobius* cases and four of the *Ascaris* cases the treatment was known to have failed. A boy of two years of age with a heavy *Trichuris* infection was negative to faecal examination after receiving up to 440 mg. per kg. But he suffered from severe ataxia, stupefaction and muscular weakness. Two children vomited after treatment with the normal dosage.

M.MCK.

(605b) A seven-years-old girl who had received, twice daily, a medium-sized spoonful of a piperazine preparation, began to suffer on the third day from tremors, sensations of dizziness, ataxia, muscular weakness, colour vision, attacks of ravenous hunger and periods of unconsciousness as in petit mal. She was nevertheless in good humour. Although the administration was stopped immediately the manifestations did not begin to recede until two days later.

M.MCK.

(605c) Piperazine is a very effective anthelmintic and in doses of 50 to 75 mg. per kg. body-weight is non-toxic, but owing to its sweet taste and rapid absorption, exact dosage and directions must be carefully followed to avoid accidents.

R.T.L.

**606—Naturwissenschaften. Berlin.**

- a. FULDNER, D., 1955.—“Reaktion von Nematoden auf Bestrahlung mit langwelligem U.V.” 42 (18), 518.

(606a) Fuldner reports that viable potato nematode larvae exposed to long wave ultra violet radiation show movement after a period of varying between 10 and 50 seconds which increases in intensity until after 120 to 180 seconds when it weakens and finally ceases. If radiation is then renewed larvae are killed after a total exposure of from four to six minutes. *Rhabditis* from the soil react in the same way, in some cases even more quickly and markedly. Fuldner thinks that long wave ultra-violet radiation may be developed into a means of determining the viability of nematode larvae, especially in connection with tests of nematocides. Further work is in progress.

A.E.F.

**607—Nederlandsch Tijdschrift voor Geneeskunde.**

- a. HEMMES, G. D., 1955.—“Lintwormdragers onder de bevolking van Nederland.” 99 (30), 2244-2247.  
 b. VRIES, E. DE, 1955.—“Trichinosis en encephalitis.” 99 (49), 3670-3674.

(607a) Hemmes reports on two limited surveys which have been carried out recently in the Netherlands on the incidence of *Taenia* infections in man. The first (which was an attempt to determine the geographical distribution) showed that cases occurred in 60 out of

65 districts questioned. The second inquiry revealed 100 cases of infection in the practices of a number of doctors with a total of 246,550 persons on their books. A.E.F.

(607b) De Vries reports a fatal case of encephalitis in a 7-years-old boy. At post-mortem an encapsulated *Trichinella* larva was found in the brain. The relationship between the two conditions is discussed. A.E.F.

#### 608—Nordisk Veterinærmedicin.

- a. LARSSON, L. O., 1955.—“Lilla leverflundran. En exposé.” 7, 976–984.

(608a) In Sweden—and particularly in Gotland—*Dicrocoelium dendriticum* infection in sheep has in recent years become of increasing economic importance. In order to help combat the disease Larsson gives an account (based on recent literature) of the parasite's life-history, of the symptoms, pathology and treatment of infection and the most promising control measures. A.E.F.

#### 609—Nuova Veterinaria.

- a. PANEBIANCO, F., 1955.—“Modificazioni ematiche in vitelli con microascaridiosi sperimentale.” 31 (4), 126–130. [English & French summaries p. 130.]

(609a) [This is a fuller account of the work described in *Atti Soc. ital. Sci. vet.*, 8, 520–521. For abstract see *Helm. Abs.*, 23, No. 580a.]

#### 610—Nuovi Annali d'Igiene e Microbiologia. Rome.

- a. ZOPPO, R. DEL, 1955.—“Contributo allo studio dell'anchilostomiasi con particolare riguardo alla terapia. (Nota 2a.)” 6 (3), 194–207. [English summary p. 206.]  
 b. GIULIANI, V., 1955.—“Cestodi e nematodi delle volpi nella Provincia di Aquila.” 6 (6), 451–453. [English summary p. 453.]  
 c. GIULIANI, V., 1955.—“Osservazioni sulla presenza di elminti in appendici asportate chirurgicamente.” 6 (6), 454–456. [English summary p. 456.]

(610a) Zoppo relates the chief clinical and coprological findings in 88 hookworm patients from the province of Teramo, Italy, and some aspects of the blood picture observed in those with anaemia. (The details relevant to 57 of these cases have already been published in *Nuovi Annali d'Igiene e Microbiologia*, 3, 124.) The most effective anthelmintic used was one containing six parts of carbon tetrachloride to one of chenopodium oil and this was administered up to four times during a period of a month. M.MCK.

(610b) The cestodes and nematodes found in 14 foxes, *Vulpes vulpes*, caught in the province of Aquila, Italy, were *Mesocestoides litteratus*, *Joyeuxiella pasqualei*, immature *Echinococcus granulosus* (in one fox), *Taenia pisiformis*, *Toxocara canis*, *Spiroptera sanguinolenta*, *Crenosoma vulpis*, *Uncinaria stenocephala* and *Capillaria* sp. Apart from the presence of *J. pasqualei* and absence of *Dipylidium caninum* these helminths corresponded almost exactly to those recovered by Saggese from stray dogs in the neighbouring province of Campobasso. M.MCK.

(610c) *Enterobius vermicularis* was found in 17 and *Trichuris trichiura* in three of the appendices removed from 150 patients at the Civil Hospital of Aquila, Italy. M.MCK.

#### 611—Papers and Proceedings of the Royal Society of Tasmania.

- a. HICKMAN, J. L., 1955.—“Arrangement of the female organs and ducts in the cestode genera *Oochoristica* Lühe and *Linstowia* Zschokke.” 89, 99–105.

(611a) The descriptions of species of *Oochoristica* frequently omit details of the female reproductive system and particularly of the course of the female genital ducts except the vagina. Their different arrangement in ten species of *Oochoristica* and in three species of *Linstowia* are compared. Hickman considers that these two genera are heterogeneous and will require



subdivision into several genera when details of the disposition of the female organs of the species of both genera are available. Lack of agreement between the original text and figures of *O. mephitis*, *O. wallacei* and *O. pedunculata* is noted.

R.T.L.

## 612—Pediatriya. Moscow.

- a. KLYUSOV, V. N., 1955.—[The diagnosis of ascariasis.] Year 1955, No. 6, pp. 27–28. [In Russian.]
- b. GUSEINOV, G. A., 1955.—[Treatment of ascariasis with santonin.] Year 1955, No. 6, pp. 28–30. [In Russian.]
- c. SELIVANOV, K. P., 1955.—[Methods of control and elimination of enterobiasis in children's homes.] Year 1955, No. 6, pp. 30–33. [In Russian.]
- d. GIMMELFARB, S. G., 1955.—[Treatment of enterobiasis (in connection with an article by the honoured scientist Prof. V. A. Valdman).] Year 1955, No. 6, pp. 34–36. [In Russian.]
- e. YUFA, E. I., 1955.—[Treatment of trichocephaliasis in children.] Year 1955, No. 6, pp. 36–38. [In Russian.]

(612e) Forty-eight children were treated for *Trichuris* by enemas of 1 ml. purified benzine, per year of age, in 80 ml. distilled water (at a temperature of up to 26°C.) given for five consecutive evenings after a cleansing enema. No side effects were observed; worms began to pass after the third injection. All the children were cured, two after a second attempt. The benzine treatment is more effective than that with Osarsol, can be repeated after 12 days and may be used for children under six years of age and also those suffering from other illnesses.

G.I.P.

## 613—Pflanzenarzt. Vienna.

- a. FABER, W., 1955.—“Nematoden als Ursache der Kleemüdigkeit des Bodens.” 8 (12), 104–106.

(613a) Faber describes the symptoms of clover sickness due to *Ditylenchus dipsaci* in red clover, the life-history of the nematode and the occurrence of biologic races with different host preferences. The best means of control is by good husbandry, crop rotation and the use of resistant clovers. The possibility of seed disinfection is being investigated. M.T.F.

## 614—Pflanzenschutz. Munich.

- a. SPRAU, F., 1955.—“Bericht über die ‘Internationale Tagung über Pflanzennematoden und die durch sie verursachten Krankheiten’ in Wageningen (Holland).” 7 (8), 105–112.
- b. SIMON, L., 1955.—“Die wichtigsten pflanzenschädlichen Nematoden.” 7 (8), 113–119.
- c. DIERCKS & KLEWITZ, 1955.—“Starke Ackerbohenschäden durch Befall mit Stengelälchen.” 7 (10), 144–145.

(614a) Sprau gives an account of the third International Nematology Symposium held at Wageningen from 30th June to 5th July 1955. He gives short abstracts of the papers presented and an account of the excursions made. [The papers have since been published in *Nematologica*, 1956, 1, parts 1, 2 & 3 and abstracted in *Helm. Abs.*, 25, Nos. 26, 117 & 266.]

M.T.F.

(614b) Simon gives short general accounts of nematode structure and the control of plant-parasitic nematodes. He then describes briefly the common nematode diseases of crop and ornamental plants, with photographs of some of them. Finally there is a short section on disease prevention.

M.T.F.

(614c) Deformation of the stems and deformation or necrosis of young leaves caused by *Ditylenchus dipsaci* in a field of broad beans on a large establishment in Matzbach seem to constitute the first observation of *D. dipsaci* in these plants in Bavaria. A large part of the infected plants had died before setting fruit although the symptoms of reduced growth and

branching, as reported in the literature, were absent. Prophylaxis and careful rotation provide the only suitable control. Other host plants, besides broad bean, which should not recur more than once in three years in the rotations include, in the case of the "beet strain" of *D. dipsaci*, rye, potatoes, oats, maize, lucerne, buckwheat, carrot, flax, hemp, horseradish, cucumber and beet and, in the case of the "potato strain", potatoes, rye, oats, maize, beet, onions, peas, kidney beans, rape and cabbage.

M.MCK.

### 615—Physiologia Comparata et Oecologia. The Hague.

- a. GERLACH, S. A., 1955.—"Die Teirwelt des Küstengrundwassers von San Rossore (Tyrrhenisches Meer)." 4 (1), 55-73. [French summary pp. 72-73.]

(615a) Between November 1951 and July 1952 Gerlach collected the microfauna of the coastal waters at the mouth of the river Arno, near Pisa. Among the material on which he reports are 37 species of nematodes: ten of these were new but have been described elsewhere. Of the 37 species 14 are considered to be characteristic for coastal waters. The relation of the nematodes to their environment is discussed.

A.E.F.

### 616—Plant Pathology. London.

- a. MORGAN, H. G., 1955.—"A new type of eelworm counting dish." 4 (3), 84-85.  
b. WINSLOW, R. D., 1955.—"Experiments on the control of the potato root eelworm by trapping with black nightshade." 4 (4), 139-140.

(616a) When it is desired to count a total eelworm hatch instead of employing a dilution count technique, an open counting dish larger than the 1 ml. MacMaster slide type is required. Morgan overcame the difficulty of "losing" nematodes in the lines of an engraved graticule by constructing a counting slide with an embossed graticule. This was achieved by casting the slide in a cold-setting transparent resin, the cavity being formed by a polished core suspended in the upper part of the resin, and the raised lines of the graticule by engraving V-shaped lines in the core base. The most suitable dimensions for the graticule and type of lighting for extensive counts are discussed.

C.C.D.

(616b) Leachings from black nightshade induced poor larval emergence from cysts of *Heterodera rostochiensis*, compared with the action of potato leachings. In plot experiments using black nightshade as a catch crop under oats, Winslow found that the "hatchable" larvae within cysts were reduced by about 40% where the nightshade grew well. He concludes, however, that in view of the comparable effects of diffusates from various grasses and the difficulty of eradicating black nightshade after a successful cropping, it would not be economic to use it as a trap-crop against potato-root eelworm.

C.C.D.

### 617—Poultry Science.

- a. RIEDEL, B. B., 1955.—"Leucine and fowl ascarids." 34 (3), 587-589.  
b. TUGWELL, R. L., 1955.—"Helminth infections in relation to restricted feeding on range." 34 (6), 1372-1375.

(617a) Riedel has shown experimentally that although leucine is an indispensable part of the diet of chicks, the amount in the diet does not affect their resistance to *Ascaridia galli*. The gains in weight and the physical appearance of the chicks, together with the number and length of the roundworms harboured, were the criteria used for the experiment.

S.W.

(617b) The helminth burdens of poultry given free range on standard summer pasture tended to be heavier if the intake of mash feed was restricted. The birds under test were divided, in each of four consecutive years, into four groups: (i) given unrestricted mash and (ii), (iii) and (iv) receiving 90%, 80% and 70% respectively of the amount group (i) was



able to consume in one day. After being housed in mid-September all groups received an all-mash ration fed *ad lib*. Necropsies were made at monthly intervals during the summer and twice after housing. 260 birds were examined in the four years. It was not known why the average number of worms per bird in group (i) was greater than that in group (ii) in each of the monthly examinations. Average worm loads increased more than expected after housing, rising in 1951 from 76.2 worms per bird in September to 285.5 in November. This indicates the necessity of worming birds just before housing if they tend to build up infections at pasture,

M.MCK.

### 618—Prensa Médica Argentina.

- a. VILLAMIL, E. F. & GAMBARINI, A. S., 1955.—“Contribución al tratamiento de los quistes hidatídicos del hígado.” 42 (37), 2860–2862.
- b. BOSQ, P., SZIDA(T), L. & SORIA, M. F., 1955.—“Dermatitis schistosómica por *Cercaria chascomusi*.” 42 (46), 3500–3504.
- c. MAGLIANO, H., FICOCELLI, L. & CORRA, O., 1955.—“Clínica y tratamiento de la oxuriasis y giardiasis en la infancia.” 42 (47), 3561–3564.
- d. KAPLAN, S. & RADICE, J. C., 1955.—“Litiasis apendicular ‘vera’.” 42 (50), 3778–3780.

(618b) Bosq *et al.* describe several cases typical of the dermatitis which has long been observed in bathers in the Lake of Chascomús, Argentina, and which is most probably caused by a furcocercous cercaria of 200  $\mu$  in length, belonging to the *ocellata* group and named by Szidat *Cercaria chascomusi*. Its host is *Littoridinà australis*. This cercaria will be described in a later publication.

M.MCK.

(618d) *Trichuris trichiura* and *Ascaris lumbricoides* eggs formed the nucleus of a calculus removed from a case of perforated appendicitis with peritonitis.

M.MCK.

### 619—Presse Médicale.

- a. RAVINA, A., 1955.—“Traitement de l’oxyurose par les antibiotiques.” 63 (35), 728.
- b. DESCHIENS, R. & POIRIER, M., 1955.—“Les caractères différentiels des hyperéosinophilies en fonction de leur étiologie.” 63 (44), 917–918.
- c. ROUSSET, P. & PFISTER, R., 1955.—“A propos d’une épidémie de fièvre au long cours à Bamako (Soudan Français). Les toxémies bilharziennes.” 63 (54), 1108–1109.
- d. LEGER, L., SIGUER, F. & VAILLE, L., 1955.—“La bilharziose hépato-splénique. Une variété de syndrome de Banti de réalisation quasi-experimentale. A propos de six cas opérés.” 63 (86), 1818–1821.

(619a) Ravina reviews the use of antibiotics in the treatment of enterobiasis. Terramycin and tetracyclin have been shown to be effective and the results obtained by a number of workers using various dosage rates are summarized.

S.W.

(619b) In general, eosinophilia of parasitic origin is about 30% or higher, is almost constant, its development (when plotted graphically) follows the same curve and it is usually irreducible by ACTH or cortisone treatment. Non-parasitic eosinophilia is commonly less than 20%, the curve is discontinuous and it is reducible by ACTH or cortisone in most cases. The response to eosinophilogenic substances is also variable in different persons.

S.W.

(619c) Rousset & Pfister describe 16 cases of schistosomal toxæmia, caused by *Schistosoma mansoni* during the invasive stage, which they observed in the French Sudan. The symptoms included fever, cough, urticarial eruption, pulmonary symptoms and eosinophilia and, in five cases, ocular disturbances. Eggs were rarely found in the faeces for some time after the onset of symptoms and then only after repeated examinations.

S.W.

(619d) During surgical treatment of six patients suffering from hepato-splenic schistosomiasis the authors were struck by the remarkable analogy with Banti’s disease. They describe the lesions of the liver and spleen, illustrating their descriptions by photomicrographs, and discuss the clinical symptoms and medical treatment with antimonials.

S.W.

**620—Proceedings of the American Veterinary Medical Association.**

- a. WHITLOCK, J. H., 1955.—"Trichostrongylidosis in sheep and cattle." 92nd Annual Meeting (1955), pp. 123-131.
- b. TODD, A. C., 1955.—"Parasite control programs in preventive medicine." 92nd Annual Meeting (1955), pp. 131-133.
- c. ENZIE, F. D. & COLGLAZIER, M. L., 1955.—"Present-day trends in anthelmintics for swine." 92nd Annual Meeting (1955), pp. 153-159. [Discussion p. 159.]
- d. GORHAM, J. R. & FARRELL, K., 1955.—"Diseases and parasites of chinchillas." 92nd Annual Meeting (1955), pp. 228-234.

(620a) Whitlock discusses the principles underlying the handling of outbreaks of trichostrongylidosis. In his opinion the carrier host has not received sufficient attention. Protective substances in milk tend to restrict the parasite population in young lambs and enable them to develop their own immunity. Although in nature the carrier state is apparently normal, a susceptible state may also occur. These differences are at least partially attributable to genetic factors in the host and possibly a range of pathogenicity within the parasitic species. The importance of rest, adequate diet and supporting therapy is emphasized. In Whitlock's experience stunting is often antecedent to parasitic disease. Control of trichostrongylidiasis must be economical, adapted to local environmental and climatic conditions and the special type of husbandry being followed. Special hazards which interfere with growth and health must be met by specially designed measures.

R.T.L.

(620b) Preventive parasite control is today largely that of management and sanitation. Emphasis must be given by veterinarians to preventive treatment based on the recognition of subclinical infections.

R.T.L.

(620c) From an historical review of recent literature and from their own tabulated experimental data on the effect of cadmium compounds (oxide, anthranilate and fumarate) and piperazine compounds (hydrate, carbon disulphide and adipate), Enzie & Colglazier conclude that of the recently introduced anthelmintics for pigs the sodium fluoride regimen is moderately superior, in cost and simplicity, to either cadmium oxide or cadmium anthranilate, although differing little in their ascaricidal action while the various piperazine compounds show unusual promise and have a wider margin of safety, although their palatability is not wholly advantageous for group feeding as the more vigorous and presumably less heavily parasitized animals will probably obtain a disproportionate share of the medicated food.

R.T.L.

(620d) In this review of the various infections to which the chinchilla is subject, cystic stages of *Multiceps serialis*, *Taenia pisiformis*, *Echinococcus granulosus* and *Hymenolepis nanus* as well as the adult of *H. nana* are cited.

R.T.L.

**621—Proceedings of the Entomological Society of Washington.**

- a. DUTKY, S. R. & HOUGH, W. S., 1955.—"Note on a parasitic nematode from codling moth larvae, *Carpocapsa pomonella* (Lepidoptera, Olethreutidae)." 57 (5), 244.

(621a) Dutky & Hough record a new nematode, *Neoplectana* sp., and an associated bacterium which cause mortality in codling moth larvae, *Carpocapsa pomonella* (Lepidoptera). They were able to infect a wide range of insects with this nematode. Among those very susceptible were *Galleria mellonella*, *Pseudaletia unipuncta*, *Ephestia elutella*, *Neodiprion* sp., *Lasioderma serricorne*, *Pyraustia nubilalis* and *Nauphoeta cinerea*. Less susceptible to infection were *Termes* sp., *Blatella germanica* and *Periplaneta americana*. Honey bee adults were resistant.

H.E.W.

**622—Proceedings of the Florida State Horticultural Society.**

- a. DuCHARME, E. P., 1955.—"Sub-soil drainage as a factor in the spread of the burrowing nematode." 68, 29-31.
- b. SUIF, R. F., DuCHARME, E. P. & BROOKS, T. L., 1955.—"Effectiveness of the pull-and-treat method for controlling the burrowing nematode on citrus." 68, 36-38.
- c. FRIERSON, P. E., 1955.—"A progress report on the burrowing nematode work in Florida." 68, 41-46.



- d. SUIT, R. F. & BROOKS, T. L., 1955.—“Progress report on treating citrus trees in place to control burrowing nematode.” 68, 50-53.
- e. FELDMESSER, J. & FEDER, W. A., 1955.—“Techniques involved in nematocide screening.” 68, 103-107.
- f. DuCHARME, E. P. & SUIT, R. F., 1955.—“Immunity of the lychee from the burrowing nematode.” 68, 270-272.
- g. YOUNG, T. W. & RUEHLE, G. D., 1955.—“Burrowing and meadow nematodes on avocados and mangos.” 68, 288-292.
- h. KELSHEIMER, E. G., 1955.—“Control of nematodes in gladiolus corms.” 68, 348-350.
- i. WILLIAMSON, C. E., TAMMEN, J., HANNON, C. I. & DENMARK, J. C., 1955.—“Some tests with soil fumigants.” 68, 370-373.

(622c) A brief history is given of the organizational progress in methods to survey citrus groves and of experimental work carried out to date and in progress. Present lines of investigation include biological studies on *Radopholus similis* from various hosts, nematicidal work and continuation and expansion of survey work. At present control is by removing infested trees and treating the soil with D-D mixture, and by planting nursery stock that has been hot-water treated.

J.B.G.

(622e) This is a general review of techniques available in the screening of nematicides. Among subjects discussed are the use of various saprobic nematodes, *Meloidogyne* spp., *Pratylenchus* sp. and *Aphelenchoides ritzema-bosi* as animals for *in vitro* tests; indicator plants; formulations and dose rates; the use of known standard nematicides for comparison of unknown nematicides; techniques for the recovery of nematodes from treated soil; interpretation of results; and tests in laboratory and field and their correlation.

J.B.G.

(622g) *Pratylenchus brachyurus* was found more commonly in avocado groves than *Radopholus similis*. Symptoms of decline were not correlatable with the presence of the nematodes although it appeared that both species caused damage to avocado. Various inoculation experiments are described. *R. similis* does not appear to attack mango but *P. brachyurus* and *Pratylenchus* sp. do.

J.B.G.

(622h) Gladiolus corms can harbour root-knot nematodes which can be carried over from one season to the next. Parathion used as a dip containing  $\frac{1}{2}$  lb. of active ingredient per 500 gallons of water for a minimum of five minutes killed more than 90% of nematodes contained in corms. It was compatible with various fungicides. A wettable powder containing 5% parathion could also be used for small numbers of corms. The paper stresses the care to be exercised with parathion and other phosphatic compounds.

J.B.G.

(622i) An attempt to control a root, basal stem-rot and wilt disease of *Chrysanthemum morifolium*, due possibly to a complex of fungi and *Meloidogyne incognita*, was made by testing the efficacy of Vapam (sodium-n-methyl dithiocarbamate), Crag 974 (dimethyl tetrahydrothiaziazine thione), methyl bromide, and a mixture of commercial formalin, allyl alcohol and D-D soil treatments. Methyl bromide was highly effective as a nematicide, and the Shasta daisy stems relatively resistant to *M. incognita*.

J.B.G.

## 23—Proceedings of the Indian Science Congress.

- a. CHATTERJI, P. N., 1955.—“On a new species of the genus *Lutztrema* Travassos, 1941.” [Abstract.] 42nd (1955), Part III, p. 282.
- b. DEO, P. G. & SRIVASTAVA, H. D., 1955.—“Studies on the biology and life-history of *Ascaridia galli*, Schrank, 1788.” [Abstract.] 42nd (1955), Part III, pp. 282-283.

(623a) Chatterji has collected a new species of *Lutztrema* [not named or described] from the liver of a spurwinged plover, *Haplopterus ventralis*.

R.T.L.

(623b) *Ascaridia galli* eggs become embryonated when kept in aerated distilled water, tap water or normal saline, (containing 10 drops of 2% formalin), for six days at 33°C. to 33.6°C. and for 16 to 18 days at 22°C. but die at 40°C. In poultry the larvae undergo three moults;

## 623—Proceedings of the Indian Science Congress (cont.)

- c. DUTT, S. C. & SRIVASTAVA, H. D., 1955.—“A revision of the genus *Ornithobilharzia* Odhner, 1912. (Trematoda: Schistosomatidae). [Abstract.] 42nd (1955), Part III, p. 283.
- d. DUTT, S. C. & MEHRA, K. N., 1955.—“Studies on the life history of *Hymenolepis farciminosa* (Goeze, 1782), a tapeworm of crow and collared myna.” [Abstract.] 42nd (1955), Part III, pp. 283–284.
- e. MEHRA, K. N., 1955.—“Studies on the life history of *Hymenolepis fraterna* (Stiles, 1906), a tapeworm of rat.” [Abstract.] 42nd (1955), Part III, p. 284.
- f. MEHRA, K. N., 1955.—“Studies on the life history of *Hymenolepis diminuta* (Rud., 1819), a common tapeworm of rat and man.” [Abstract.] 42nd (1955), Part III, p. 284.
- g. PETER, C. T. & SRIVASTAVA, H. D., 1955.—“*Cercaria ratnagiriensis* n.sp., a megalurous cercaria from *Paludomus obesa* (Philippi).” [Abstract.] 42nd (1955), Part III, pp. 284–285.
- h. PETER, C. T., 1955.—“*Echinostome* cercariae from Bareilly, with the description of a new species.” [Abstract.] 42nd (1955), Part III, p. 285.

the first between six and eight days, the second within 14 to 15 days and the third in 18 to 21 days after the embryonated eggs are swallowed. They attain maturity in 28 to 34 days in chickens four to eight weeks old. Migration of the larvae into the intestinal mucosa between the 10th and 18th day was infrequent.

R.T.L.

(623c) As the mammalian schistosomes *Ornithobilharzia bomfordi*, *O. turkestanicum* and *O. dattai* differ from the avian schistosomes of the genus in (i) the large number of testes (37–80) in the male and (ii) the ovoid shape of the ovary and the presence of one set only of vitellaria in the female, they are transferred to a new genus *Orientobilharzia* with *O. dattai* (Dutt & Srivastava, 1952) n.comb. as type. *Ornithobilharzia nairi* is transferred to *Bivittobilharzia* as *B. nairi* (Mudaliar & Ramanujachari, 1945) n.comb. and *O. hoepplii* to *Microbilharzia* as *M. hoepplii* (Tang, 1951) n.comb. *Ornithobilharzia odhneri* is made type of a new genus *Sinobilharzia* as *S. odhneri* (Faust, 1924) n.comb.

R.T.L.

(623d) When *Acrotylus humbertianus*, *Acrida exaltata*, *Oedaleus abruptus* and several other grasshoppers were fed on gravid segments of *Hymenolepis farciminosa*, the cysticercoid stage was reached in seven days. Mature *H. farciminosa* were recovered at autopsy from a crow *Corvus* sp. which had been fed on the infected grasshoppers.

R.T.L.

(623e) In India the intermediate hosts of *Hymenolepis fraterna* have hitherto been unknown; they have now been shown experimentally to be *Tribolium confusum* and *Latheticus oryzae*. The cysticercoids, which develop in the body-cavity in seven days, developed into adults in white rats. White rats were also infected directly by feeding them with the eggs. *Latheticus oryzae* is a new intermediate host for *H. fraterna*.

R.T.L.

(623f) Mehra has shown experimentally that in India the beetles *Tribolium confusum*, *Latheticus oryzae* and *Opatroides vicinus* are intermediate hosts of *Hymenolepis diminuta*. The cysticercoids develop in the beetle larvae more readily than in the adults. White rats showed eggs of *H. diminuta* in their faeces 19 to 22 days after being fed with cysticercoids.

R.T.L.

(623g) *Cercaria ratnagiriensis* n.sp., in *Paludomus obesa* from Gimbvi village in the Ratnagiri district of Bombay State, is a megalurous cercaria with a clump of 10 rod-shaped granules anterior to a cluster of eight cells arranged around the funnel-like invagination at the tip of the tail. There are eight pairs of penetration gland openings armed with spines, 12 pairs of flame cells and a well differentiated genital system. The cercariae encyst readily.

R.T.L.

(623h) *Cercaria beaveri* n.sp. from *Indoplanorbis exustus*, at Bareilly, belongs to Sewell's *Echinata* group but differs from other members of the group in having 27 collar spines, four corner and six lateral on either side, seven dorsal in alternating rows, a horseshoe-shaped anterior organ on the dorsum of the body, an oesophagus of nine cells, caeca without annulations, eight penetration gland openings, 15 pairs of flame cells and distinct genital rudiments. The cercariae encyst in the gill-chamber of tadpoles.

R.T.L.



## 623—Proceedings of the Indian Science Congress (cont.)

- i. PREMVATI, 1955.—“*Cercaria reniforma* n.sp.—a new monostome cercaria from the snail, *Melanoides flavidus*.” [Abstract.] 42nd (1955), Part III, p. 285.
- j. GANAPATI, P. N. & RAO, K. H., 1955.—“On the occurrence of metacercariae cysts of a diplostome (Trematoda) in fresh-water fishes.” [Abstract.] 42nd (1955), Part III, pp. 285–286.
- k. BHATIA, M. L., 1955.—“*Haemadipsa zeylanica agilis* (Moore), a land leech from Nainital and Almora.” [Abstract.] 42nd (1955), Part III, p. 286.
- l. SAHU, K. C., 1955.—“Incidence of urticaria in filariasis.” [Abstract.] 42nd (1955), Part III, pp. 332–333.
- m. BHASKARAN, T. R. & SAMPATHKUMARAN, M. A., 1955.—“Effect of sewage and excreta disposal methods on intestinal parasites.” [Abstract.] 42nd (1955), Part III, pp. 339–340.
- n. DEO, P. G. & SRIVASTAVA, H. D., 1955.—“Studies on the effect of multiple primary infections upon a subsequent infection of *Ascaridia galli*, Schrank, 1788, in chickens.” [Abstract.] 42nd (1955), Part III, pp. 346–347.
- o. RAO, S. R. & HIREGAUDAR, L. S., 1955.—“A note on little known forms of *Taenia* (Cyclophyllidae).” [Abstract.] 42nd (1955), Part III, p. 350.
- p. DUTT, S. C. & SRIVASTAVA, H. D., 1955.—“Studies on the life history of *Orientobilharzia dattai* (Dutt & Srivastava, 1952) n.comb.—a blood-fluke of domestic mammals.” [Abstract.] 42nd (1955), Part III, pp. 350–351.

(623i) *Cercaria reniforma* n.sp. which develops in rediae in *Melanoides flavidus* is a monostome cercaria with a pair of lateral eye-spots but lacks fin-folds on the tail. The body and tail are covered with spines. There are two groups of penetration glands, a lateral group of seven pairs of large pyriform glands and a medium pairs group of four pairs of small rounded cells. The caeca extend to the middle of the body and the excretory bladder is reniform. There are six pairs of flame cells in the body. R.T.L.

(623j) All over the body of the carp *Catla catla*, *Labeo calbasu* and *Nuria danrica* in a fisheries pond at Samalkot there are black ovoid patches containing metacercarial cysts of the genus *Diplostomum*. The mortality rate among the infected fish is high. R.T.L.

(623l) Both adults and microfilariae may be responsible for an urticaria of a transient nature which often recurred regularly in 25 out of 110 cases of filariasis in Orissa. Microfilariae were found by lymphatic gland puncture long before they appeared in the blood. R.T.L.

(623m) From the data on the efficiency of the methods of sewage and excreta disposal at Bhatpara, Belur and Batanagar in removing helminth eggs presented in tabular form [but not reproduced] it is concluded that at least primary sedimentation or septic tank treatment is essential. The composting of refuse with human excreta, if properly supervised, also killed the majority of parasite eggs. R.T.L.

(623n) Evidence was submitted that repeated primary infections of chickens, when nine weeks old, with 200 ova of *Ascaridia galli* increased their resistance to subsequent infection. R.T.L.

(623o) The authors have observed *Taenia* with a single row of hooks on the rostellum, but otherwise indistinguishable from other forms of *Taenia*, during their study of taeniids from dogs and cats. [One row is sometimes left adhering to the intestinal mucosa.] R.T.L.

(623p) *Limnaea luteola* f. *australis* alone of the common aquatic snails at Izatnagar were infected with *Orientobilharzia dattai*. The infection rate in nature was five per thousand but in the laboratory it was 87.5% and all ages were susceptible. The incubation period in the mollusc varied from 15 to 67 days depending on the temperature. Before emergence, cercariae possess a pair of “escape glands”. 52% of the 82 buffaloes examined post mortem were naturally infected. Buffalo calves, cattle, sheep, goats and donkeys, rabbits, guinea-pigs, white rats and white mice were infected experimentally but pigs, dogs, cats, monkeys and birds were not susceptible. R.T.L.

## 623—Proceedings of the Indian Science Congress (cont.)

- q. DUTT, S. C. & SRIVASTAVA, H. D., 1955.—“Biological studies on *Orientobilharzia datta* (Dutt & Srivastava, 1952)—a blood fluke of domestic mammals.” [Abstract.] 42nd (1955), Part III, p. 351.
- r. DUTT, S. C. & SRIVASTAVA, H. D., 1955.—“Toxicity of certain chemicals to the miracidia and cercariae of *Schistosoma indicum* and *Orientobilharzia dattai*.” [Abstract.] 42nd (1955), Part III, pp. 351–352.
- s. MEHRA, K. N. & SRIVASTAVA, H. D., 1955.—“Studies on the life history of *Moniezia benedeni* (Moniez, 1879), a tapeworm of ruminants.” [Abstract.] 42nd (1955), Part III, p. 352.
- t. MEHRA, K. N. & SRIVASTAVA, H. D., 1955.—“Studies on the life history of *Moniezia expansa* (Rud., 1810), a broad tapeworm of ruminants.” [Abstract.] 42nd (1955), Part III, p. 352.
- u. PETER, C. T., 1955.—“A note on the pre-cercarial development of *Pseudodiscus collinsi* (Cobbold, 1875) Sonsino, 1895.” [Abstract.] 42nd (1955), Part III, pp. 352–353.
- v. PETER, C. T. & SRIVASTAVA, H. D., 1955.—“On five new species of amphistome cercariae from India.” [Abstract.] 42nd (1955), Part III, p. 353.
- w. SRIVASTAVA, H. D. & DUTT, S. C., 1955.—“Biological studies on *Schistosoma indicum* Montgomery, 1906, a common blood-fluke of Indian ungulates.” [Abstract.] 42nd (1955), Part III, p. 353.

(623q) The eggs of *Orientobilharzia dattai* survived for 44 days at 10°C. With higher temperatures the length of survival decreased. At 30°C.–32°C., 98.8% of the miracidia hatched within an hour. At 10°C. they survived up to 28 hours. Cercariae survived 150 hours at 10°C., decreasing with rises in temperature. *Limnaea luteola* infected by a single miracidium shed an average of 1,271 cercariae daily. When two to four miracidia were used about 1,915 cercariae were shed daily. The emergence of cercariae was markedly periodic. 96.1% of the total output occurred during the mornings.

R.T.L.

(623r) Copper sulphate, potassium permanganate, calcium hydroxide and Paris green were found to possess good larvicidal properties against the miracidia and cercariae of *Schistosoma indicum* and *Orientobilharzia dattai*. Washing soap was only effective in high concentrations and gammexane had no lethal action.

R.T.L.

(623s) Oribatid mites were found, experimentally, to act as intermediate hosts of *Moniezia benedeni*. Eggs developed to the cysticercoid stage in six to seven weeks. A clean lamb was successfully infected by administering infected mites and cysticercoids.

R.T.L.

(623t) Unidentified oribatid mites have been found to act as intermediate hosts of *Moniezia expansa* in India. Development to the cysticercoid stage takes nine to 12 weeks. Clean kids and lambs were successfully infected with the infected mites and by cysticercoids. The faeces of an infected lamb contained eggs on the 47th day after infection and a specimen of *M. expansa* was found at autopsy.

R.T.L.

(623u) The miracidia of *Pseudodiscus collinsi* hatched from eggs, obtained from the faeces of an elephant, in 17 days. The intermediate host proved to be *Indoplanorbis exustus* which discharged cercariae 34 days after experimental infection. These cercariae were identical with those previously shown to develop into *P. collinsi* in equines, but the eggs obtained from the elephant were slightly larger than those from equines.

R.T.L.

(623v) Local fresh-water snails at Izatnagar harboured eight species of amphistome cercariae of which five are named as new. It is stated that descriptions of their rediae, cercariae and metacercariae were given in the paper submitted to the Congress [but they are not published in the authors' abstract].

R.T.L.

(623w) The maximum longevity of *Schistosoma indicum* eggs at winter temperature was 16 days and at summer temperature five days [at Izatnagar]. Stored in a closed vessel kept at 10°C. they survived 34 days. At 10°C. the miracidia survived 30 hours, in winter 22 hours, in summer 12 hours. The cercariae survived 145 hours at 10°C., in winter 48 hours and in summer 30 hours.

R.T.L.



**623—Proceedings of the Indian Science Congress (cont.)**

- x. SRIVASTAVA, H. D. & DUTT, S. C., 1955.—“Life history of *Schistosoma indicum* Montgomery, 1906, a common blood-fluke of Indian ungulates.” [Abstract.] 42nd (1955), Part III, p. 354.
- y. SRIVASTAVA, H. D. & MEHRA, K. N., 1955.—“Studies on the life history of *Ascaris vitulorum* (Goeze, 1782), the large intestinal roundworm of bovines.” [Abstract.] 42nd (1955), Part III, p. 354.
- z. SOOTA, T. D., 1955.—“Fauna of the Kashmir Valley: leeches.” [Abstract.] 42nd (1955), Part IV, p. 10.
- ba. JAISWAL, G., 1955.—“On a new species of trematode belonging to the genus *Philophthalmus* Looss, 1899, from the eyes of bird in Hyderabad-Deccan.” [Abstract.] 42nd (1955), Part IV, p. 10.

(623x) The infection rate of *Schistosoma indicum* in 4,642 naturally infected *Indoplanorbis exustus* was about two per thousand. Only very young specimens could be infected. In the laboratory the incubation period varied from 22 to 37 days according to the temperature. Cercarial emergence occurred during the morning hours. Goat, sheep, donkey, buffalo, rabbit, guinea-pig, white rat, white and grey mouse, but not monkeys, were experimentally infected. One out of 85 buffaloes was found at autopsy to be naturally infected. R.T.L.

(623y) In India ascariasis causes a high mortality among young calves and buffaloes. The earliest natural infection observed was in a 26-days-old bull calf. Embryonated ova were fed to four buffaloes, all in an advanced stage of pregnancy, and the four calves subsequently born were found to be infected, one when only seven days old. *Neoascaris vitulorum* eggs developed to the larval stage in 0.5%, 1% and 2% formalin, but if the solutions were deprived of dissolved oxygen the eggs showed markedly retarded development after five weeks. R.T.L.

(623z) Twelve species of leeches belonging to eight genera, have been reported, so far, from Kashmir Valley. The preponderance of palaearctic species suggests that they entered the Kashmir Valley from Europe and northern Asia. R.T.L.

(623ba) *Philophthalmus aquillai* n.sp., from the orbital cavity of a tawny eagle, *Aquila rapax*, differs from all known forms in the advanced position of its genital pore above the intestinal fork and in the location of the gonads in the hindermost part of the body. R.T.L.

**624—Proceedings of the Indiana Academy of Science.**

- a. BERRY, J. E., ONOFRIO, R. & MIZELLE, J. D., 1955.—“Studies on monogenetic trematodes. XVIII. Nature of the attachment of Tetraonchinae to the gills of centrarchids.” [Abstract.] Year 1954, 64, 254-255.
- b. MIZELLE, J. D., 1955.—“Studies on monogenetic trematodes. XIX. The status of North American Dactylogyrinae and Tetraonchinae.” Year 1954, 64, 260-264.
- c. MORAN, Jr., J. F., 1955.—“Effect of a choline-deficient diet on the host-parasite relationship of the domestic fowl and *Ascaridia galli* (Schrank).” Year 1954, 64, 288-290.

(624a) From a study the attachment of Tetraonchinae to the gills of *Chaenobryttus gulosus* and *Micropterus salmoides*, Berry *et al.* conclude that they cause no damage to the host. In all cases except one the haptor was inserted between adjacent gill filaments; no leucocytic infiltration or other histological changes were observed. S.W.

(624b) Mizelle briefly outlines the characters distinguishing the subfamilies of the Dactylogyridae and discusses two, the Dactylogyrinae and Tetraonchinae, in more detail. Morphologically they are very similar, differing chiefly in that there is one pair of anchors in the former and two pairs in the latter. The Dactylogyrinae contains only two genera, *Dactylogyrus* and *Dogielius*, *Neodactylogyrus* being rejected. The Tetraonchinae contains twenty genera which fall into two groups, the *Rhabdosynochus-Anchoradiscus* group and the *Urocleidus* group. *Clavanculus* n.g., of which the generic diagnosis is being published elsewhere, is proposed for some species of *Actinocleidus*. *Aristocleidus*, *Haplocleidus*, *Onchocleidus*, *Pterocleidus* and *Tetracleidus* are retained in the genus *Urocleidus*. S.W.

(624c) From experiments on fowls kept on (i) a synthetic choline-deficient diet, (ii) a synthetic diet plus 0.2 gm. of choline per 100 gm. diet and (iii) a commercial starter ration, all inoculated with 600 infective ova of *Ascaridia galli*, Moran concludes that the diet is of more importance than the natural resistance of the host in determining the quantity of infection. Uninfected birds fed on the commercial starter ration were used as controls. S.W.

#### 625—Proceedings of the Iowa Academy of Science.

- a. ULMER, M. J., 1955.—“Notes on tetracotyles within echinostome rediae from the Okoboji region.” **62**, 550-554.
- b. HOFFMAN, G. L., 1955.—“Notes on the life cycle of *Bunodera eucaliae* Miller (Trematoda, Allocreadiidae) of the stickleback, *Eucalia inconstans*.” **62**, 638-639.

(625a) In a high percentage of *Limnaea reflexa* in ponds near Lakeside Laboratory on West Lake, Okoboji in north-west Iowa, strigeid metacercariae of the tetracotyle type were found in the hermaphroditic gland. The snails were also infected with echinostome rediae, within which strigeid metacercariae in all stages of development were observed. R.T.L.

(625b) Although he was unable to complete the life-cycle of *Bunodera eucaliae* experimentally, Hoffman has observed the bivalve *Pisidium noveboracense* producing cercariae which were very similar to those of *Crepidostomum* spp. but he failed to infect any second intermediate host. As the smallest immature *B. eucaliae* from naturally infected fish had developed little further than cercariae, except for the loss of their tails, there may be no second intermediary. R.T.L.

#### 626—Proceedings of the Royal Physical Society of Edinburgh.

- a. LAL, M. B., 1955.—“Occurrence of a new parasite (trematode metacercaria) in the eyes of Scottish trout.” **24** (1), 1-3.
- b. MACKINTOSH, G. M., 1955.—“Helminth parasites of the rabbit, *Oryctolagus cuniculus* on the Isle of Eigg.” **24** (2), 35-37.

(626a) Lal now gives the names of the various lochs, rivers and reservoirs of Scotland (ranging from the counties of Ross and Cromarty in the north to Roxburghshire and Selkirkshire in the south) and the incidence in the fish examined, in which he found a new diplostomulum in the eye of brown trout *Salmo trutta* which he named *Diplostomulum truttae* n.sp. in 1953 [for abstract see Helm. Abs., **22**, No. 42b]. Five out of 33 river specimens and 59 out of 72 fish from lochs and reservoirs were infected. Out of a total of 105 fishes examined 64 were infected. The maximum number of parasites recovered from one fish was 156. A few small tail-less but cercaria-like bodies among the larger forms showed features recalling those of the furcocercous type of cercaria. R.T.L.

(626b) The helminths found in the 45 rabbits examined under field conditions in the Island of Eigg off the Invernesshire coast of Scotland belonged to the following species, *Cittotaenia pectinata*, *Coenurus serialis*, *Cysticercus pisiformis*, *Fasciola hepatica*, *Graphidium strigosum*, *Passalurus ambiguus* and *Trichostrongylus retortaeformis*. Local information indicated that the incidence of *Fasciola hepatica* in sheep is high. R.T.L.

#### 627—Proceedings of the Society for Experimental Biology and Medicine.

- a. LUTTERMOSER, G. W., BOND, H. W. & SHERMAN, J. F., 1955.—“Chemotherapy of experimental schistosomiasis. IV. Oral activity of antimony trichloride antibiotic complexes.” **90** (1), 122-124.
- b. WEIMER, H. E., VOGEL, M., QUINN, F. A. & REDLICH-MOSHIN, J., 1955.—“Serum glycoprotein concentrations in rats infected with the cestode, *Hymenolepis diminuta*.” **90** (2), 494-496.

(627a) From experimental treatment of mice infected with *Schistosoma mansoni*, Luttermoser, Bond & Sherman conclude that the antimony trichloride complexes of oxytetracyclin, chlortetracyclin and tetracyclin are no more effective, when given orally, than tartar emetic or antimony trichloride. S.W.



(627b) In rats experimentally infected with *Hymenolepis diminuta* there were no significant differences in the serum concentrations of total glycoprotein, seromucoid,  $\gamma$ -globulin polysaccharide, total protein and  $\gamma$ -globulin protein when compared with the concentrations in uninfected rats. There were however increases in the haemoglobin and haematocrit values which were significant at the 5% level. S.W.

## 628—Profilassi.

- a. GIAMPORCARO, S. & BIANCO, A., 1955.—“Contributo alla diagnosi della distomatosi bovina applicazione pratica di una nuova tecnica per l'esame coprologico.” 28 (2), 88–92.
- b. BERTOLINO, P., 1955.—“Sulla frequenza di *Dicrocoelium dendriticum* isolato ed in associazione con *Fasciola hepatica* in equini ed ovini della zona di Roma.” 28 (5), 212–214. [English & French summaries p. 214.]
- c. GIAMPORCARO, S. & BIANCO, A., 1955.—“Ulteriore contributo alla diagnosi coprologica della distomatosi bovina.” 28 (5), 219–224.
- d. LAI, M., 1955.—“*L'Ostertagia pinnata* (Daubney, 1933) repertata negli ovini e nei caprini della Sardegna.” 28 (6), 270–273. [French summary p. 273.]

(628a) Giamporcaro & Bianco report that the faecal concentration technique of Swanson & Hopper, as modified by Rivera-Anaya & Martínez de Jesús [for abstract see Helm. Abs., 21, No. 17a], is a reliable method of diagnosing *Fasciola hepatica* infection in cattle. It detected the eggs of this parasite in 40 naturally infected cattle and was negative in ten animals which at autopsy were not infected. Although this method revealed up to three eggs per slide provided two or three slides were examined in each case, it was no guide to the degree of infection. M.MCK.

(628b) Bertolino draws attention to the high incidence of *Dicrocoelium dendriticum* in donkeys, horses and mules brought to the zoo in Rome from the surrounding country for slaughter as food for carnivores. Of 115 animals examined by opening their bile-ducts along their lengths, 53 were infected, some with many hundreds of flukes. One donkey was parasitized by *Fasciola hepatica* only and six had *D. dendriticum* also. 398 donkeys were examined by the official meat inspection technique, i.e. a single deep cut on the visceral surface of the liver, and only 18% were found with *D. dendriticum*. This less thorough method of examination accounts for this relatively low percentage. Both species of fluke occurred in all of 45 sheep also slaughtered. M.MCK.

(628c) The faecal concentration technique of Rivera-Anaya & Martínez de Jesús [for abstract see Helm. Abs., 21, No. 17a] revealed infections of *Dicrocoelium dendriticum* in 93 out of 100 infected cattle and one out of 20 which appeared at slaughter to be free of the parasite. The authors tested each of the faecal techniques of Rivera-Anaya & Martínez de Jesús, Szepeshelyi & Urbányi [for abstract see Helm. Abs., 3, No. 85b], Telemann and Couchemez on ten cattle infected with *D. dendriticum* and *Fasciola hepatica*. The technique of Szepeshelyi & Urbányi appeared to be the most reliable for it revealed up to six eggs per slide and detected both kinds of flukes in all the cattle on which it was tested. M.MCK.

(628d) *Ostertagia pinnata* is reported from 13 of 286 goats and 11 of 337 sheep in Sardinia. This is the first record of *O. pinnata* in goats. Lai gives a photomicrograph and a drawing of the caudal bursa and copulatory apparatus. In every case *O. pinnata* was associated with *O. circumcincta* and *O. trifurcata*. M.MCK.

## 629—Progresso Veterinario. Turin.

- a. GIACOMINI, A., 1955.—“Singamosi tracheobronchiale.” 10 (23), 837, 839.

(629a) Giacomini reviews the symptoms and pathology of *Syngamus trachea* infections and the various treatments which have been tried, including barium antimony tartrate as a powder for inhalation. M.MCK.

## 630—Publicações Avulsas do Instituto Aggeu Magalhães. Recife.

- a. COELHO, B. & COUTINHO, E. M., 1955.—“Histopatologia da infestação natural e experimental do timbu ou gambá (*Didelphis paraguayensis paraguayensis*) por *Schistosoma mansoni*.” 4, 1-38. [English summary p. 10.]
- b. MAGALHÃES NETO, B. & MORAES, J. G. DE, 1955.—“Avaliação da atividade moluscocida em laboratório.” 4, 39-50. [English summary p. 50.]
- c. BARBOSA, F. S. & COELHO, M. V., 1955.—“Comportamento das formas larvárias de *Schistosoma mansoni* em *Australorbis glabratus* (Mollusca Planorbidae), sujeitos à estivação.” 4, 51-60. [English summary pp. 59-60.]
- d. COELHO, R. DE B., 1955.—“Patologia da esquistossomose mansônica. I. Comportamento patogênico do ovo do *Schistosoma mansoni*.” 4, 61-71. [English summary p. 69.]
- e. OLIVIER, L. & BARBOSA, F. S., 1955.—“Seasonal studies on *Australorbis glabratus* Say from two localities in eastern Pernambuco, Brazil.” 4, 79-103. [Portuguese summary pp. 101-102.]
- f. OLIVIER, L. & BARBOSA, F. S., 1955.—“Seasonal studies on *Tropicorbis centimetralis* in northeastern Brazil.” 4, 105-115. [Portuguese summary pp. 114-115.]
- g. MAGALHÃES NETO, B. & MORAES, J. G. DE, 1955.—“Estudo da regulação osmótica em *Australorbis glabratus*. I. Aumento do teor de cloretos do sangue em função da salinidade do meio.” 4, 117-124. [English summary p. 124.]

(630a) Coelho & Coutinho describe in detail the pathological changes observed in six opossums, *Didelphis paraguayensis paraguayensis*, naturally infected with *Schistosoma mansoni* and in ten *D. paraguayensis paraguayensis* examined 70 to 115 days after experimental infection. Thirteen photomicrographs illustrate the lesions found in the liver, lungs, pancreas, a lymphatic gland, spleen, intestine, urinary bladder and stomach wall. M.MCK.

(630b) Copper sulphate and sodium pentachlorophenate were tested on freshly collected *Australorbis glabratus* and *Tropicorbis berryi*. The mortality of *A. glabratus*, the more resistant of the two species, did not reach 100% unless the snails were exposed to 40 p.p.m. of either copper sulphate for four hours or sodium pentachlorophenate for eight hours. All of the *T. berryi* died after contact for four hours with copper sulphate at 5 p.p.m. or sodium pentachlorophenate at 20 p.p.m. M.MCK.

(630c) When 402 *Australorbis glabratus* with fully developed infections of *Schistosoma mansoni* were desiccated for 21 to 60 days, 122 survived. All were free of infection apart from occasional remains of parasites. Experiments with over a thousand *A. glabratus* removed from water with immature infections, i.e. of less than 25 days, showed that such snails may survive out of water with their infections for 90 days or more, and that development of the parasite is resumed after return to the water. M.MCK.

(630d) From his own and other workers' experimental findings, Coelho traces the development of the tissue reactions of man and animals to the eggs of *Schistosoma mansoni*. This development can be divided into three stages: (i) local histolysis and inflammatory exudation (miracidia still alive); (ii) histiocytic encysting reaction around the egg, perhaps of antigen-antibody type (miracidia dead); and (iii) formation of giant cells, fibrous regression of the granuloma, formation of the collagenous nodule and reopening of the vessel with disappearance of the reaction tissue. Coelho discusses the dissemination of eggs in the body and reviews some of the less usual reactions to schistosome eggs. M.MCK.

(630e) A study of temporary habitats of *Australorbis glabratus* in the area of eastern Pernambuco, Brazil, where schistosomiasis is endemic, showed that a few, chiefly small, snails survive the dry season and grow and reproduce rapidly when the wet season returns. Since the density of population is lowest at the start of the rainy season this may be the best time to apply chemical control. Populations seem to reach a maximum during the first half of this season, the snails reaching maturity before it ends. The life-span is usually less than a year and probably does not exceed 15-17 months. In permanent habitats molluscs reproduce throughout the year but the population may fall suddenly without known cause. The coincidence of such falls in population with attempts to control snails might be very misleading. M.MCK.



(630f) In habitats that dry annually near Recife, Brazil, the seasonal cycle of *Tropicorbis centimetralis* is not significantly different from that of *Australorbis glabratus* [see abstract No. 630e above]. *T. centimetralis*, however, tends to live in habitats that dry more thoroughly and remain dry longer.

M.MCK.

(630g) *Australorbis glabratus* from natural waters containing 40.95 mg. % of sodium chloride had an average concentration of 200.66 mg. % of this salt in the blood; those from a habitat containing 14.27 mg. % of sodium chloride had an average blood content of 184.70 mg. %. Groups of this snail were placed in distilled water, or in diluted sea water or brine containing 1.17 mg. % to 1,200 mg. % of salt. The concentration in their blood varied, after 24 hours, with the concentration of the water but ranged within narrower limits, viz., 101.97 mg. % to 662.22 mg. %. All the snails maintained in the concentration of 1,200 mg. % died.

M.MCK.

### 631—Publications of the Seto Marine Biological Laboratory.

a. WIESER, W., 1955.—“A collection of marine nematodes from Japan.” 4 (2/3), 159–181.

(631a) So far only 11 marine nematodes have been recorded from East Asia, viz., five species from Japanese waters and six from the east Asiatic coast. Wieser reporting on a collection of 26 species from seaweed near Seto, Shirahamo-tyô, Wakayama-ken, identifies 21 species including *Acanthonchus setoi* n.sp., *Chromadorina inversa* n.sp., *Euchromadora tokiokai* n.sp. and *Spilophorella tollenifera* n.sp. He considers that *Eurystomina terricola* var. *ophthalmophora* is a synonym of *E. ornatum*. *Desmodora paramicrochaeta* and perhaps *D. aucklandiae* are synonyms of *D. scaldensis*. Of the species in the collection, eight are cosmopolitan and three are known on both sides of the Pacific. Wieser stresses the difficulty of classifying marine nematodes unless the identification is based on both males and females and accompanied by figures or at least by absolute measurements and a succinct description.

R.T.L.

### 632—Quarterly Journal of the Royal Meteorological Society.

a. GRAINGER, J., 1955.—“Climate, host and parasite in crop disease.” 81 (347), 80–88.

(632a) On the narrow coastal strips of Ayrshire and Wigtownshire, first-early Epicure potatoes are grown year after year without a break. As these areas are relatively free from frost the earliest crops are planted in February and lifted in June. Most of the land is infested with *Heterodera rostochiensis* yet paying crops are obtained yearly. These early potatoes make an initial growth of appreciable tuber formation before the soil temperature rises to 43°F., which is the minimum temperature of activity of *Heterodera rostochiensis*, and when the tubers are lifted early in June the cysts are still white or yellow in colour. These cysts contribute little to soil infestation and the loss of yield is only 30% to 40% as compared with 80% to 100% if this variety is planted later as a main crop. The differential effect of soil temperature on host and parasite is designated “a disease escape mechanism”.

R.T.L.

### 633—Radiation Research. New York.

- a. BACHOFER, C. S. & PAHL, G., 1955.—“Influence of extended temperature treatments on recovery of X-irradiated *Ascaris* eggs.” 2 (1), 50–63.
- b. BACHOFER, C. S., 1955.—“Pronuclear fusion, cell cleavage, and embryogenesis of irradiated *Ascaris* eggs.” [Abstract of paper presented before the Radiation Research Society, New York, May 16–18, 1955.] 3 (2), 212–213.

(633a) In 1939 Cook reported that if eggs of *Parascaris equorum* which had been X-irradiated were subsequently kept at 5°C. for long periods they showed a remarkable recovery. Bachofer & Pahl have now investigated the response of eggs of *Ascaris lumbricoides*

from the pig to similar treatment. X-irradiation causes the first cleavage to be delayed and this delay is not altered by keeping the eggs at 0°C. or 5°C. for periods up to 35 weeks before incubating at 30°C. Subjection of the eggs to low temperatures before incubation resulted in fewer eggs completing embryogenesis, suggesting that this is controlled by a different mechanism. Irradiated eggs were more sensitive than normal eggs to temperatures above the optimum (30°C.). S.W.

(633b) Bachofer exposed *Ascaris* ova to irradiation with ultra-violet and X-rays and found that it caused considerable delay in the initiation of pronuclear fusion and cell cleavage and, in some doses, prevented the completion of embryogenesis. Sharp differences in the effects of the two types of irradiation were observed, the X-rays having a much more marked effect on the inhibition of embryogenesis than did the ultra-violet. Experiments on possible recovery mechanisms indicated that deoxygenation and incubation for 24 hours after irradiation, before aerobic incubation, would shorten the time required for the fusion of the pronuclei and commencement of cleavage and increase the percentage of ova completing embryogenesis. S.W.

**634—Recueil des Travaux des Laboratoires de Botanique Géologie et Zoologie de la Faculté des Sciences de l'Université de Montpellier. Série Zoologique.**

- a. BAER, J. G. & EUZET, L., 1955.—“*Prosobothrium armigerum* Cohn 1902 (Cestoda). Historique, synonymie, description et position systématique.” Fasc. 1, pp. 44–55.

(634a) Baer & Euzet have redescribed and figured *Prosobothrium armigerum* Cohn, 1902 of which *P. japonicum* and *Ichthyotaenia adhaerens* (for which Woodland made the genus *Lintoniella* in 1927) are synonyms. The presence of spines on the surface of the strobila, the bilobed ovary and the position of the vitelline glands, which surround the other genital organs, suffice to place *Prosobothrium* in a new family Prosobothriidae. It is also proposed that *Phoreiobothrium*, *Platybothrium* and *Dicranobothrium* be put into a new family *Phoreiobothriidae* near to *Prosobothriidae* but distinguished from it by the scolex which carries large hooks. R.T.L.

**635—Redia. Florence.**

- a. BRUNETTI, B. & MARINARI, A., 1955.—“Osservazioni sui nematodi galligeni in Italia. I. *Meloidogyne incognita* (Kofoid e White 1919) Chitwood 1949 su radici di tabacco.” Ser. 2, 40, 259–267. [English summary p. 267.]

(635a) The roots of tobacco plants, at Scafati (Salerno), were heavily infested with eelworms of the genus *Meloidogyne*. From the morphology of the adults and larvae and the perineal patterns of the females, which are described in detail and illustrated, it is concluded that they belong to *Meloidogyne incognita*. R.T.L.

**636—Refuah Veterinarith. Jerusalem.**

- a. GORDON, R. M. & KERSHAW, W. E., 1955.—[Some filarial infections occurring in the tropical rain-forest of West Africa.] 12 (2), 154–156. [In Hebrew: also in English pp. 270–264.]

(636a) Gordon & Kershaw summarize the results so far obtained in their investigations in the Cameroons on the oecology of the *Chrysops* vectors of *Loa loa* and on the role of the monkey as a reservoir host. As control of the flies is at present unlikely, reduction in the incidence of the infection is more likely to follow the use of drugs where the natives are co-operative and monkeys are few or absent. R.T.L.



**37—Report. East African Veterinary Research Organization.**

- a. DINNIK, J. A. & DINNIK, N. N., 1955.—“The development and survival of *Haemonchus contortus* larvae on pasture under the local conditions of the highlands of Kenya.” Years 1952–55, pp. 76–84.
- b. DINNIK, J. A. & DINNIK, N. N., 1955.—“Stomach flukes (Trematoda, Paramphistomidae) found in cattle, sheep and goats in the highlands of Kenya.” Years 1952–55, pp. 84–88.
- c. DINNIK, J. A. & DINNIK, N. N., 1955.—“Research on liver flukes in East Africa.” Years 1952–55, pp. 88–89.

(637a) Although the air temperature in the Kenya Highlands varies only about 5°F. at the Equator (9,000 ft.) and about 70°F. at Kabete (6,200 ft.) and the monthly mean maximum only drops below 64°F. in the highest regions, the diurnal variations may exceed 30°F. The rainfall varies considerably and the rainy seasons in various parts do not coincide. Consequently each area and indeed each farm must base its helminth control plan on local meteorological conditions. The authors have therefore studied the influence of temperature and rainfall on the development of *Haemonchus contortus*. At Kabete the temperature conditions were favourable when the diurnal fluctuations were between a mean maximum of 74°F. or more and a mean minimum of not less than 54°F. and a monthly rainfall of two inches or more was essential for larvae to develop to the infective stage in sufficient quantities to cause an outbreak of haemonchiasis. In the hot, dry seasons infective larvae seldom survived longer than ten days on open pasture when the air temperature maximum was about 80°F. From their experiments they deduced that about one inch of rain per ten days, a mean maximum air temperature of 74°F. and a mean minimum of not less than 53°F. are necessary for development of eggs into infective larvae on pasture. As a result of these observations a table was prepared which sets out meteorological data for five representative localities in the Kenya Highlands and certain months were outlined in black as dangerous. If the temperature and rainfall were similarly plotted for an individual farm the table would provide a rational guide for the annual dosing of stock with anthelmintics, except in very abnormal years. R.T.L.

(637b) Paramphistomes are wide-spread in cattle in the Kenya Highlands. Of 924 examined 720 were infected, moderately in most cases but with many thousands, often of two or more species, in a number of animals. The incidence in sheep and goats was lower, only 30 out of 455 sheep and 42 out of 259 goats being infected. The ten species recovered, including one new species of *Paramphistomum* which is to be described elsewhere, are annotated. *Ceylonocotyle scoliocoelium* is recorded for the first time in Africa. S.W.

(637c) In Kenya *Limnaea caillaudi* has been proved by laboratory experiments to be the intermediate host of *Fasciola gigantica* but not of *Fasciola hepatica*. The first, second and third generations of rediae produced daughter rediae as well as cercariae. R.T.L.

**38—Report of the Indian Veterinary Research Institute, Mukteswar and Izatnagar.**

- a. ANON., 1955.—“Helminthology.” Year 1952–53, pp. 83–86.

(638a) In the helminthological section of this report an account is given of investigations in *Schistosoma indicum*, *S. incognitum*, *Ornithobilharzia dattai* and on schistosome and echinostome infections in man in India. When faeces containing *S. indicum* eggs were stored at 15°C. the miracidia survived for 34 days, but only for five days at 32°–36°C. Hatching occurred at 15° to 40°C. only if the faeces was diluted with more than fifty times its volume of water, the optimum dilution being 300 times or more. Saline solutions of over 0.8% totally inhibited hatching. The miracidia were positively phototropic and negatively geotropic. Their maximum longevity at 30°C. was 30 hours but only 25 minutes at 45°C. A buffalo calf, a lamb, two rabbits and eight guinea-pigs were experimentally infected with *S. indicum*. *Ornithobilharzia dattai* was found in 52% of 85 buffaloes, in a bull calf, a sheep and a goat. The maximum longevity of the miracidia in eggs in stored faeces was 44 days. Copper sulphate, calcium hydroxide, potassium permanganate, washing soap and Paris green possess good larvicidal properties against the cercariae of *S. indicum* and *O. dattai*. A young goat infected with *S. incognitum*

was injected intravenously thrice daily, for two days, with a total dosage of 12 mg. per kg. body-weight of potassium antimony tartrate and the course was repeated three months later. No adult schistosomes were found at autopsy five months after the first course of treatment. Around Izatnagar over 50% of the molluscs are naturally infected with amphistomes belonging to eight different species. A protein-deficient diet did not lower the resistance of poultry to *Heterakis gallinae* infection. Although the rate of infection was low after the age of 14 weeks complete resistance did not develop.

R.T.L.

### 639—Report of the Minister for Agriculture. Dublin.

- a. ANON., 1955.—“Annual Report, 1954-55.” 24th (1954-55), 174 pp. + Appendices [86] pp. [See pp. 41-42, 79-81, 148-149, [16].]

(639a) Examination of 1,294 samples of soil during 1954-55 revealed a high incidence of the cereal root eelworm in many parts of Ireland. The sugar-beet eelworm was found for the first time in Ireland, in a few crops in the counties of Cork, Wexford and Carlow; eight out of the 700 soil samples examined were positive.

R.T.L.

### 640—Revista Brasileira de Gastroenterologia.

- a. SILVA, R. R. DA, MANZIONE, A. & PEREIRA, J. G. M., 1955.—“Achados retoscópicos na esquistosomíase de Manson—Pirajá da Silva.” 7 (3), 157-166.

(640a) Rectal examination and rectal biopsy showed that of 178 persons with *Schistosoma mansoni* in São Paulo, Brazil, the rectal mucosa was normal in 76, oedematous in 54, hyperaemic in 42, suffused with blood in 39, granulomatous in 32, varicose in 11 and ulcerated in 10; polyps of schistosome origin were present in one. In eight the capillaries of the mucosa gave the appearance of a red network. Many persons presented more than one kind of disturbance. Pathological changes caused by other factors should not be confused with those caused by schistosomiasis.

M.MCK.

### 641—Revista Brasileira de Malariologia e Doenças Tropicais.

- a. RACHOU, R. G., NEVES, H. A. & SCAFF, L. M., 1955.—“Da possibilidade do emprêgo do hetrazan em esquemas de curta duração no combate à bancroftose.” 7 (1), 37-39. [English summary p. 38.]
- b. NEVES, H. A., RACHOU, R. G. & SCAFF, L. M., 1955.—“Primeiros resultados de observações relativas à ação do hetrazan sobre a microfilaremia de *Wuchereria bancrofti* feitas em Belém, Pará.” 7 (1), 41-49. [English summary p. 44.]
- c. RACHOU, R. G., LIMA, M. M., FERREIRA NETO, J. A. & MARTINS, C. M., 1955.—“Inquérito epidemiológico de filariose bancroftiana em uma localidade de Santa Catarina, como fase preliminar de uma prova profilática. Constatação de transmissão extradomiciliária por um novo vetor, *Aedes scapularis*.” 7 (1), 51-70. [English summary pp. 61-62.]

(641a) Forty-three carriers of *Wuchereria bancrofti* in Brazil received 6 mg. of hetrazan per kg. body-weight per day for seven days. Only 15 were positive on the third day of treatment and the over-all microfilarial density had dropped by 93.1%. On the day after the end of treatment 13 were still positive. Rachou *et al.* have therefore started investigating one and three-day treatments, the former at an increased dosage rate.

M.MCK.

(641b) The daily administration of 6 mg. of hetrazan per kg. body-weight to several hundred carriers of *Wuchereria bancrofti* in Brazil yielded very similar results whether treatment lasted seven or ten days: by the end of treatment about 75% had become negative and 18 months later about 80% were negative. As the results so far obtained from treatments of 15 and 21 days' duration are only a little better, a seven-day treatment is advocated.

M.MCK.

(641c) A survey of 131 inhabitants of Ponta Grossa, a fishing village in Santa Catarina State, Brazil, showed infections of *Wuchereria bancrofti* in 19 and elephantiasis in a further 10. Of the mosquitoes caught in the houses, 10.8% of 279 *Culex pipiens fatigans* were infected and one of three female *Anopheles (Kerteszia) bellator* harboured the pre-sausage stage. This



## 641—Revista Brasileira de Malariologia e Doenças Tropicais (cont.)

- d. ANDRADE, R. M. DE, SANTOS, I. N. & OLIVEIRA, R., 1955.—“Contribuição para o conhecimento dos criadouros de planorbíneos, na área do Distrito Federal: I. Variação de diferentes fatores químicos de suas águas.” 7 (1), 103-130. [English & German summaries pp. 127-130.]
- e. PEREIRA DA SILVA, L. H., PESSOA, S. B. & COSTA, L., 1955.—“Sobre o valor de um único exame de fezes para avaliação da incidência da esquistossomose mansônica em zona endêmica.” 7 (1), 181-188. [English summary p. 186.]
- f. RACHOU, R. G., 1955.—“Variação da microfilarémia de *Wuchereria bancrofti* em 25 portadores em Santa Catarina examinados durante 52 semanas seguidas.” 7 (2), 209-213. [English summary pp. 212-213.]
- g. AGUIRRE, G. H., SILVA, J. F. & TAVARES, M. D., 1955.—“Sulfato de cobre como planorbicida; seu emprego no Setor Bahia do Serviço Nacional de Malária.” 7 (2), 235-243. [English summary p. 237.]
- h. MARTINS, A. V., MARTINS, G. & BRITO R. S. DE, 1955.—“Reservatórios silvestres do *Schistosoma mansoni* no Estado de Minas Gerais.” 7 (2), 259-265. [English summary p. 265.]

is the first report of *W. bancrofti* in *A. (K.) bellator*. Of 39 *Aedes scapularis* caught outdoors with human bait, three were infected and one had infective larvae suggesting the possibility of outdoor transmission. Although this survey was made 25 days after a sixth application of D.D.T. in the houses, results were not so good as in 1951-52. M.MCK.

(641d) Andrade *et al.* set out in extensive tables the pH, hardness, total and mineral acidities, contents of iron, silicon, chlorides, sulphates, orthophosphates, nitrites, nitrates and ammoniacal nitrogen and the oxygen consumed in the waters of 100 habitats of *Australorbis immunitis* and *A. tenagophilus* in Rio de Janeiro. M.MCK.

(641e) In the district of Mandacaru in João Pessoa, Brazil, Pereira da Silva *et al.* performed four additional successive stool examinations on 67 individuals found negative for *Schistosoma mansoni* at a first examination. Those still negative were given an intradermal test. Only 27 gave consistently negative results, suggesting an incidence of 73% as compared with the known local rate of 33%. A marked rise was also noted in the incidence of other intestinal worms. The authors point out that variations in schistosome incidence in different localities with long-standing endemicity are largely due to the examination of groups which are not homogeneous in their habits and therefore not equally exposed to contaminated water. M.MCK.

(641f) Rachou gives extensive tables and graphs of the density of microfilariae in the night blood of 25 carriers of *Wuchereria bancrofti* examined weekly for 52 consecutive weeks in Santa Catarina State, Brazil. The density varied greatly and 21.2% of the total blood samples were negative. In autumn and winter the density was higher than in spring and summer, probably because people went to bed earlier. M.MCK.

(641g) As sodium pentachlorophenate is not available in Brazil, copper sulphate was reconsidered as a molluscicide. Treatments of running waters, as observed on snails submerged in bamboo cages, was effective when a solution was applied at a strength of up to 10% to maintain a final concentration of 10-20 p.p.m. for 48 hours, or for 72 hours if waters were markedly turbid or alkaline. Marginal habitats were sprayed or sprinkled separately. This copper sulphate treatment of 164 localities in 34 counties in Bahia, over about a year, reduced the density of planorbids by 92%. M.MCK.

(641h) Natural infections of *Schistosoma mansoni* were found, for the first time, in the rodents *Rattus norvegicus norvegicus*, *Zygodontomys lasiurus*, *Cavia aperea aperea* and *Oryzomys matogrossae* during a survey of 210 wild mammals of 16 species from Jaboticatubas and Belo Horizonte in Minas Gerais State, Brazil. Infections were also found in the known hosts *D. subflavus*, *Nectomys squamipes aquaticus* and *Didelphis paraguayensis*. *N. s. aquaticus* and *R. n. norvegicus* are considered to be of special epidemiological importance, mainly because of their aquatic habits. Martins *et al.* do not recognize the variety *rodentorum* of *S. mansoni*. M.MCK.

**641—Revista Brasileira de Malariologia e Doenças Tropicais (cont.)**

- i. PAULINI, E., 1955.—“Método colorimétrico para a determinação de cobre em criadouros de planorbídeos.” 7 (2), 273-275. [English summary p. 275.]
- j. PAULINI, E., 1955.—“Um dispositivo simples para a aplicação de moluscocida líquido.” 7 (2), 277-279. [English summary p. 279.]
- k. PESSOA, S. B., PEREIRA DA SILVA, L. H. & COSTA, L., 1955.—“Observações sobre a epidemiologia da esquistossomose no Estado da Paraíba.” 7 (2), 305-310. [English summary p. 310.]
- l. RACHOU, R. G., LACERDA, N. & BARBOSA, J. A., 1955.—“Inquérito de filariose humana em Manaus (Amazonas).” 7 (3), 315-324. [English summary p. 320.]
- m. FERREIRA, M. O., RACHOU, R. G., MARTINS, C. M. & FERREIRA NETTO, J. A., 1955.—“Novo foco de filariose bancroftiana no sul do Brasil; Barra, Município de Laguna, Estado de Santa Catarina.” 7 (3), 325-328. [English summary p. 328.]
- n. PEREIRA DA SILVA, L. H. & ROLIM CARNEIRO, M. DAS N., 1955.—“Nota sobre a incidência do *Strongyloides stercoralis* em zona urbana e rural do Estado da Paraíba.” 7 (3), 333-336. [English summary p. 336.]
- o. PESSOA, S. B., PEREIRA DA SILVA, L. H. & COSTA, L., 1955.—“Sobre a anemia na esquistossomose mansônica em zonas urbana e rural do Estado da Paraíba.” 7 (3), 337-342. [English summary p. 340.]

(641i) For field use in the control of planorbids, the “pyridine-thiocyanate” method for determining minute quantities of copper in water is rapid and detects up to 2 p.p.m. The copper ion reacts with pyridine and thiocyanate in a medium containing acetic acid to form a green precipitate. This is dissolved in chloroform and gives a greenish-yellow colour which can be compared visually with standard solutions. (These unfortunately last only 15 days.)

M.MCK.

(641j) Paulini describes a reliable device for treating running water with a molluscicidal solution in regions where simple mechanical contrivances are unavailable. A wooden barrel is closed by a stopper with two short glass tubes, or simply two bore holes: one an outlet of 4-8 mm. in diameter and the other an air inlet of 1 mm. in diameter. The flow is adjusted by regulating the air intake.

M.MCK.

(641k) The schistosome infections of several hundred persons in Paraíba State, Brazil [found during the survey reported in abstract No. 641v below] are tabulated comparatively with those of infected persons in Sergipe State, on the bases of severity of disease, gross pathology and nature of the blood picture. It is concluded that the endemic infection in Paraíba is less severe.

M.MCK.

(641l) The night blood of 10,899 people was examined between April and August in Manaus, Brazil. 0.2% were infected with *Wuchereria bancrofti*, ten of the cases being apparently autochthonous, and 0.4% harboured *Mansonella ozzardi*, two cases being apparently autochthonous. Larvae were found in four of 3,815 *Culex pipiens fatigans* but were pre-sausage stage only.

M.MCK.

(641m) At Barra in the county of Laguna, Santa Catarina State, Brazil, *Wuchereria bancrofti* was detected during a summer survey in 9.4% of 1,195 people and in 9 of 264 *Culex pipiens fatigans* from the local houses.

M.MCK.

(641n) Stool examinations by the Baermann technique of 372 people in João Pessoa and 180 in the rural district of São João, Paraíba State, Brazil, demonstrated *Strongyloides stercoralis* in 20.1% and 40% respectively. Sedimentation examinations had detected infections in only 3.76% and 3.88%.

M.MCK.

(641o) Anaemia, usually of the hypochromic macrocytic type, was present in each of the 131 persons in João Pessoa and the 43 persons in the rural area of Usina São João in Paraíba State, Brazil, found during a survey to be infected with *Schistosoma mansoni*. In 35 apparently uninfected persons hypochromic normocytic anaemia predominated but only five of these did not show *Necator* infection.

M.MCK.



# 1—Revista Brasileira de Malariologia e Doenças Tropicais (cont.)

- p. AGUIRRE, G. H., 1955.—“Considerações sobre a campanha contra a esquistossomose mansônica na Bahia.” 7 (3), 347-349. [English summary p. 349.]
- q. BEZERRA, O. F., 1955.—“Contribuição ao conhecimento dos planorbídeos do Estado do Ceará.” 7 (3), 351-355. [English summary p. 355.]
- r. AGUIRRE, G. H., 1955.—“Sugestão para um controle econômico da população planorbídea do único foco de esquistossomose mansoni, conhecido na Amazônia.” 7 (3), 357-359. [English summary p. 359.]
- s. JESUS, O. A. DE, 1955.—“Primeiros resultados da profilaxia planorbídea, como método de controle de esquistossomose mansônica, na zona das Grotas, no Estado da Bahia.” 7 (3), 361-362. [English summary p. 362.]
- t. VIANNA MELLO, F. J., 1955.—“Drenagem como método auxiliar no combate à esquistossomose.” 7 (3), 363-365. [English summary p. 365.]
- u. PERLOWAGORA-SZUMLEWICZ, A. & OLIVEIRA DIAS, G. DE, 1955.—“Experiências de laboratório sobre a possibilidade de os planorbídeos viverem dentro da lama ou nela se enterrarem na ocasião do tratamento com planorbicidas.” 7 (3), 375-383. [English summary pp. 379-381.]

(641p) Aguirre suggests methods for controlling intestinal schistosomiasis in Bahia and emphasizes the necessity of changing the deeply rooted popular opinion that payment for public services is unjustified. M.MCK.

(641q) Planorbids collected in 68 localities of 15 counties in the State of Ceará, Brazil are identified as *Gyraulus melleus*, *Drepanotrema cultratus*, *D. cimex*, *D. anatinus*, *Tropicorbis amineus* (*T. centimetralis*) and *T. janeirensis*. About 90% of the identified specimens were *stramineus* which had the widest distribution. Dissection of over 15,000 snails from six of the counties, including all the above species except *D. anatinus*, showed infection with *Schistosoma mansoni* only in *T. stramineus* from two counties. M.MCK.

(641r) The waste liquid resulting from the coagulation of rubber latex was found to contain about two parts per thousand of sodium pentachlorophenate. Good results followed when a concentration of 20 p.p.m. was maintained for 72 hours in planorbid habitats at Ardlândia, which is a rubber-processing area and the only focus of *Schistosoma mansoni* in Amazônia, Brazil. M.MCK.

(641s) Copper sulphate was applied at concentrations of 1:100,000 and 1:300,000 to 224 collections of water inhabited by planorbids (*Australorbis glabratus*, *Tropicorbis centimetralis* and *Drepanotrema* sp.) in eight counties in the region of Grotas, Bahia State, Brazil. The planorbid population was reduced by 95-9%. M.MCK.

(641t) Drainage can aid molluscicidal control by eliminating or reducing large snail habitats and has the added advantages of controlling culicids, reclaiming land for agriculture and awakening a sense of hygiene in the population. A marsh known as Lake Torre, in the suburbs of Jequié, Brazil, was drained at a cost of Cr\$ 14,656 [Brazilian currency] after more than Cr\$ 140,000 had been spent there on weeding and chemical treatment. The results exceeded expectations. M.MCK.

(641u) *Australorbis immunis* were buried in earthen vessels in mud from the snails' habitats and of varying water contents, to depths of 2-8 cm. for 24-48 hours. When extracted from the mud they were rotting or did not revive within 96 hours of being placed in fresh water. A few snails had emerged spontaneously but many died afterwards. The subjection of free snails to 5-20 p.p.m. solutions of sodium pentachlorophenate or copper sulphate killed them and did not induce burrowing even into fluid mud. Buried specimens to which were added water and then molluscicidal solutions did not survive. M.MCK.

**641—Revista Brasileira de Malariologia e Doenças Tropicais (cont.)**

- v. PESSÔA, S. B., PEREIRA DA SILVA, L. H. & COSTA, L., 1955.—“Nota sobre a incidência de parasitoses intestinais em zonas urbana e rural do Estado da Paraíba.” 7 (4), 423-438. [English summary p. 427.]
- w. GONÇALVES, N. B. & LOUREIRO SOARES, R. DE R., 1955.—“Atividade moluscocida do ricinoleato de cobre.” 7 (4), 445-453. [English summary pp. 452-453.]

(641v) Among 1,389 individuals in João Pessoa and 496 at Usina São João in Paraíba State, Brazil, hookworm was found respectively in 47.66% and 55.65%, *Ascaris lumbricoides* in 86.11% and 86.09%, *Trichuris trichiura* in 78.11% and 72.98%, *Strongyloides stercoralis* in 6.69% and 5.04% and *Schistosoma mansoni* in 25.63% and 40.73%. M.MCK.

(641w) Copper ricinoleate was tested on *Australorbis glabratus* in containers with pieces of natural vegetation and compared with other molluscicides at concentrations of 1:400,000 to 1:50,000,000 (all copper salt concentrations are given as the equivalent of cupric oxide). It formed a stable emulsion in water at high dilutions and was the most lethal compound, killing in some cases 65% of snails at a concentration 1:20,000,000 for 24 hours, when copper sulphate killed 45% at a concentration of 1:10,000,000 and pentachlorophenol only 5%. Fine emulsions of copper ricinoleate form a film over vegetation and the lethal effect increases when snails eat more after hibernation. Nearly all of the margins of a pond containing *A. tenagophilus* were sprayed with an aqueous emulsion of 1:5,000 copper ricinoleate prepared from a 1.25% alcoholic solution and one hour later 95.2% of the treated snails were dead. Copper ricinoleate is cheaply prepared by mixing a solution of one litre of water and 200 gm. of sodium or potassium hydroxide with 1,000 gm. of castor oil, warming till soluble in water and leaving for 24 hours. The resulting soap is kept in a closed jar. To prepare a solution of 1:5,000 equivalent of cupric oxide, 400 gm. of the soap are dissolved in water and made up to 6 litres. With it is mixed a prepared solution of 42 gm. of crystalline copper sulphate in 4 litres of water. One litre of this preparation treats 2,000 litres of water. M.MCK.

**642—Revista Brasileira de Medicina.**

- a. PERLOWAGORA-SZUMLEWICZ, A. & OLIVEIRA DIAS, G. DE, 1955.—“Experiências sobre a rapidez da ação moluscocida do sulfato de cobre e pentachlorofenato de sódio em relação ao contacto e à concentração.” 12 (5), 295-303. [English summary pp. 302-303.]
- b. LEITE, G., 1955.—“Estudo etário de 1885 casos de esquistossomose mansônica em Feira de Santana.” 12 (5), 319-327.

(642a) As the known vectors of human schistosomiasis were not obtainable in quantities tests with aqueous molluscicidal solutions were conducted on *Australorbis immunis* from natural habitats in Rio de Janeiro. All snails died after contact with 20 p.p.m. of copper sulphate for four hours or 20 p.p.m. of a sodium pentachlorophenate preparation for eight hours. Mortality was 100% after exposure for one to two minutes to 500-600 p.p.m. of copper sulphate but an increase to 1,000 p.p.m. did not cause immediate death. 1,000 p.p.m. of the sodium pentachlorophenate preparation killed only half the snails after exposures of one to three minutes. Snails usually took three to four days to die in fresh water after copper sulphate treatment but those subjected to sodium pentachlorophenate generally died within 24 hours. It seems advisable to use copper sulphate in the field particularly where concentrations cannot easily be maintained. The author reflects that, when comparing molluscicides, the action of copper sulphate is influenced by temperature and that, if snails are not washed when transferred to fresh water, the time of molluscicidal exposure is probably lengthened. M.MCK.

(642b) Among 1,885 patients voiding *Schistosoma mansoni* eggs and examined at Feira de Santana, Bahia, Brazil, children one to four years old were infected. The proportions of persons in each age group increased sharply at adolescence and reached a peak in the group 21-24 years of age. Thereafter the proportion in each age group progressively declined. M.MCK.



**643—Revista de Ciências Veterinárias. Lisbon.**

- a. BORGES FERREIRA, L. D. B., 1955.—“O *Ascaris lumbricoides* Lineu, 1758 no *Canis (Canis) familiaris*.” 50 (355), 311-317. [French summary p. 315.]

(643a) Borges Ferreira has found eggs of *Ascaris lumbricoides* in five dogs in Portugal and illustrates them by photomicrographs.

M.MCK.

**644—Revista Clínica Española.**

- a. PIRINGER, W. & SARMIENTO, J., 1955.—“La destrucción de los huevos de *Ascaris lumbricoides* por hexylresorcinol *in vitro*.” 57 (3), 174-179. [English, French & German summaries p. 179.]
- b. OBRADOR, S. & LAMAS, E., 1955.—“Cisticercos solitarios del cuarto ventrículo.” 59 (1), 42-44.
- c. RODRÍGUEZ DE LEDESMA, J. P., 1955.—“Lobectomía por quiste hídático.” 59 (4), 257-258.

(644a) An aqueous suspension of mature and immature eggs of *Ascaris lumbricoides* was added to an equal volume of a mixture of hexylresorcinol and glycerin. Destruction of the eggs, marked chiefly by a disintegration of the nucleus to a homogeneous mass, became manifest at a concentration of 0.001 gm. of hexylresorcinol per c.c., and all eggs were destroyed at a concentration of 0.005 gm. per c.c. But eggs of *Trichuris trichiura* and *Necator americanus* remained normal even after 48 hours. Exposure of *A. lumbricoides* eggs in water to chenopodium oil was followed by swelling of the shell but the protoplasm was unaltered. A mixture of chenopodium oil and hexylresorcinol gave results corresponding to those of hexylresorcinol. Carbon tetrachloride had no effect. In the presence of human gastric juice the *Ascaris* eggs merely swelled but chemicals penetrated them more easily.

M.MCK.

**645—Revista Colombiana de Pediatría y Puericultura.**

- a. ESTRADA-CALDERÓN, U., 1955.—“Las parasitosis intestinales en escolares y pre-escolares de Cali, con especial referencia a la eosinofilia y la dilatación pupilar.” 15 (1), 39-51.

(645a) In the faeces of 1,857 children one to fifteen years of age in Cali, Colombia, *Trichuris trichiura* was the commonest parasite with an incidence of 53.5%. *Ascaris lumbricoides* was observed in 35%, hookworm in 4.6%, *Strongyloides stercoralis* in 5.2% and tape-worm in 0.5%. The erythrocyte and eosinophil counts were ascertained for several hundred of the children and are discussed. The state of dilatation of the pupil of the eye was observed and related to the faecal findings in 961 of the children. Dilatation was not invariably associated with intestinal parasitism but nevertheless is considered valuable in detecting probable infection.

M.MCK.

**646—Revista da Faculdade de Medicina Veterinária. São Paulo.**

- a. RIBEIRO NETTO, A. & MALHEIRO, D. DE M., 1955.—“Nota sobre a técnica de administração de água oxigenada, por via retal, no combate às helmintoses do cão doméstico.” 5 (3), 325-327. [English summary p. 327.]
- b. MIGLIANO, M. F., 1955.—“O hemograma do cão em diferentes condições patológicas.” 5 (3), 427-530. [English summary pp. 507-510.]

(646a) When hydrogen peroxide is injected per rectum in dogs as an anthelmintic the animals start vomiting. To confirm that the hydrogen peroxide passes through the whole gut and appears in the vomit, a 1% solution of cooked starch, mixed with hydrogen peroxide, was introduced per rectum into four dogs which had received no food for 24 hours. The presence of starch and hence of hydrogen peroxide in the vomit was verified by the addition of Lugol's solution which produced a blue colour. It is recommended that the injection of hydrogen peroxide should be terminated when vomiting starts instead of the dosages being redetermined by body-weight.

M.MCK.

(646b) In this extensive investigation on the blood picture of dogs with different pathological conditions, some of the animals were infected with *Dipylidium*, *Ancylostoma*, *Toxocara*, *Trichuris vulpis* and *Spirocerca lupi*. As found in previous studies, helminth infections in young animals tended to be characterized by an intense anaemia and by eosinopenia whereas in older animals these conditions were not so evident unless the animals were badly fed. High eosinophilia was only observed with *Trichuris* infections in relatively healthy animals. The complaints other than helminthiasis tended to dominate the leucocyte picture but the values of the erythrocyte series were determined by the helminth infections. Migliano tabulates the details of the blood counts obtained and those of previous workers. M.MCK.

#### 647—Revista del Instituto de Salubridad y Enfermedades Tropicales. Mexico.

- a. MAZZOTTI, L., 1955.—“*Limnaea obrussa* Say, huésped intermediario de *Fasciola hepatica*.” 15 (3), 163-165. [English summary p. 165.]
- b. CARRILLO, R. A., 1955.—“Parasitosis por *Enterobius vermicularis* en 500 niños de la Paz, Baja California, México.” 15 (3), 183-185. [English summary p. 184.]
- c. LÓPEZ RICO, A., LOYO DÍAZ, C., RETOLAZA DÍAZ, T. & BRAVO BECHERELLE, M. A., 1955.—“Tratamiento de la ascariidiosis con citrato de piperazina y hexilresorcinol. Estudio de 157 casos.” 15 (3), 187-193. [English summary p. 193.]
- d. MAZZOTTI, L., SANDOVAL, F. & BRISEÑO, C., 1955.—“Conservación experimental de los quistes de *Trichinella spiralis* en diversas sustancias químicas. Su aplicación en el estudio de esa parasitosis en el cerdo u otros mamíferos.” 15 (4), 205-212. [English summary p. 212.]
- e. MAZZOTTI, L., CRIOLLOS, O. & DÍAZ MUÑOZ, A., 1955.—“Tratamiento de la teniasis con semillas de calabaza. Técnica simplificada para la preparación de un extracto acuoso.” 15 (4), 213-216. [English summary p. 216.]
- f. MAZZOTTI, L. & TORROELLA, J., 1955.—“Resultados negativos del hetrazan en dos casos humanos de cisticercosis ocular.” 15 (4), 217-219. [English summary p. 219.]
- g. AHUMADA, M., DÍAZ MUÑOZ, A. & MAZZOTTI, L., 1955.—“Utilidad de la administración previa de ‘Largactil’ en los pacientes de teniasis tratados con acridínicos.” 15 (4), 233-234. [English summary p. 234.]

(647a) *Limnaea obrussa* collected in Northern Mexico proved, experimentally, to be an intermediate host of *Fasciola hepatica*. R.T.L.

(647b) *Enterobius vermicularis* was detected by Graham's method in 22.4% of 500 school children in La Paz, Mexico. R.T.L.

(647c) In a comparative study of their efficacy against *Ascaris* infection in man, piperazine citrate syrup cured 98 out of 104 while hexylresorcinol cured 41 out of 53 individuals. R.T.L.

(647d) A 50% solution of diethanolamine or ethanolamine (or a 25% solution to which 1% of commercial formalin had been added) proved better media than boric acid or glycerin for preserving specimens of muscle for subsequent examination for *Trichinella spiralis*. Preservation in diethanolamine was satisfactory up to 360 days and in ethanolamine up to 180 days later. M.MCK.

(647e) For the treatment of *Taenia* infections an extract sufficient for a single dose can be prepared by beating 500 gm. of shelled and ground pumpkin seeds in three litres of water, simmering and stirring slowly for half an hour, cooling for half an hour and straining off the liquid with thorough squeezing of the cloth. The fluid is simmered down to 150 c.c. to 200 c.c. with the elimination of the oily scum, filtered and kept either in the refrigerator, or at room temperature, with the addition of two parts per thousand of methyl parahydroxybenzoate (“Nipagin”). The addition of a dessertspoonful of sugar and a little lemon juice improves the flavour. The extract is given on an empty stomach and followed two hours later by a saline purge. M.MCK.

(647f) Hetrazan in doses of 300 mg. per day given orally for 12 and 16 days respectively failed to cure two patients suffering from ocular cysticerciasis. M.MCK.



(647g) The administration of chlorpromazine (one 25-gm. tablet of Largactil) half an hour before treating eight patients for *Taenia* infection with atebirin was very effective in preventing nausea and vomiting.

M.MCK.

#### 648—Revista Kuba de Medicina Tropical y Parasitología.

- a. BASNUEVO, J. G., 1955.—“Diagnóstico de certeza del parasitismo intestinal en Cuba.” **11** (7/12), 53–57.
- b. CALVO FONSECA, R., 1955.—“Estudio del parasitismo en nuestro medio, visto principalmente como causa de mortalidad.” **11** (7/12), 57–63.
- c. BASNUEVO, J. G. & PATTERSON, J. F., 1955.—“Larva migrans tratada con inyecciones intradérmicas de cloroquina y emetina.” **11** (7/12), 63–66.
- d. BASNUEVO, J. G., 1955.—“La solución aceto-formo-azucarada (A.F.A.)” **11** (7/12), 67.

(648a) Basnuevo summarizes various procedures for diagnosing helminths in man, including *Dipylidium caninum*, *Inermicapsifer cubensis*, *Diphyllbothrium latum*, *Railletina*, *Fasciola hepatica*, *Clonorchis sinensis* and *Schistosoma mansoni*. He redescribes his two sedimentation techniques, one using a solution based on cane-sugar and the other using a solution based on formalin and methylene blue, and gives variants of these methods.

M.MCK.

(648b) Calvo Fonseca bases a discussion of the lethal role of intestinal parasites on an analysis of the official statistics of Cuba from 1934 to 1949 inclusive (excepting 1941 and 1942). Deaths clearly caused by intestinal parasites totalled 4,476 of which nearly 75% were in children under nine years of age. The rate of these deaths per 100,000 of the calculated population has decreased from 11.07 in 1934 to 5.7 in 1949 as a result of the campaign, started in 1946, for treating parasitic diseases. Hydatid is not endemic in Cuba. The commonest helminths there are *Trichuris trichiura*, *Ascaris lumbricoides* and *Necator americanus*. Calvo Fonseca reviews the ways in which these worms can cause death. *T. trichiura* is killing an increasing number of children, nearly all of whom are under five, and 481 of the 4,476 deaths were attributed to *Necator*. Many more than the recorded cases must succumb to parasites.

M.MCK.

(648c) Multiple lesions of larva migrans on the buttocks and ankles of a six-year-old girl were treated with ethyl chloride and then with injections of 0.5–1.0 c.c. of a solution containing chloroquine disphosphate 0.25 gm., emetine hydrochloride 0.025 gm., quinacrine 0.01 gm., phenol 0.01 gm., chlorobutanol 0.025 gm., and water 5 c.c. These injections, given every 48 hours or 72 hours around the advancing ends of the larval trails, caused the lesions to disappear. There were no toxic effects. Photographs show the larval trails retouched in black.

M.MCK.

(648d) This article is a repetition of Basnuevo's sedimentation technique based on a cane-sugar solution but has, in addition, a table giving the number of *Ascaris lumbricoides* eggs obtained in eight cases as compared with direct examination and the Willis technique.

M.MCK.

#### 649—Revista de Medicina Experimental. Lima.

- a. MENESES, O., 1955.—“Incidencia de la distomatosis hepática en los conejos de la ciudad de Lima y alrededores.” Years 1952–55, **9**, 103–109. [English summary p. 108.]
- b. GONZALES-MUGABURU, L., 1955.—“Algunas observaciones sobre parasitismo intestinal en escolares de Iquitos.” Years 1952–55, **9**, 110–115. [English summary p. 114.]
- c. GONZALES-MUGABURU, L. & ARBAIZA, E., 1955.—“Nota sobre cisticercosis en cerdos sacrificados en el Matadero Municipal de Chiclayo (Depto. de Lambayeque).” Years 1952–55, **9**, 116–118.

(649a) The eggs of *Fasciola hepatica* were detected in the faeces of 11 out of 419 rabbits from four private rearing establishments in and around Lima, Peru. At the National Institute of Hygiene in Lima the faeces of 16 out of 81 rabbits were positive and autopsies on another 38 showed that six were infected. The higher incidence in the laboratory rabbits is attributed to their main diet of wild grasses from the edges of ditches. Those privately reared were fed chiefly on lucerne and concentrates.

M.MCK.

(649c) Between 1941 and 1951 the annual incidence of *Cysticercus cellulosae* in pigs slaughtered at the municipal abattoir of Chiclayo, Lambayeque, Peru, varied from 2% to 4.3%. The number of pigs examined totalled nearly 80,000. M.MCK.

#### 650—Revista de Medicina Veterinaria y Parasitología. Caracas.

- a. VOGELSANG, E. G. & MAYAUDON T., H., 1955.—“Contribución al estudio de la parasitología animal en Venezuela. XX. Endoparásitos de animales domésticos y salvajes de Venezuela.” 14 (1/4), 31–36.
- b. MAYAUDON T., H., 1955.—“Endoparásitos de las gallinas (*Gallus gallus domesticus*) en Venezuela.” 14 (1/4), 99–122.
- c. VOGELSANG, E. G., 1955.—“Filarias de animales domésticos observados en Venezuela.” 14 (1/4), 123–126.
- d. MAYAUDON T., H. & PÉREZ, V. J., 1955.—“Tratamiento de la anquilostomiasis y ascaridiosis canina con ‘Terit’ Farbwerke, Hoechst A. G.” 14 (1/4), 127–129.

(650a) Continuing their work on the helminth fauna of Venezuela, Vogelsang & Mayaudon list one trematode, four cestodes and 16 nematodes of domestic fowl and of wild and domestic mammals, with notes on the hosts, localities and known incidences of each. M.MCK.

(650b) Mayaudon annotates the seven helminth species which he found in about a hundred domestic fowl from different parts of Venezuela. He reviews or comments on their local distribution, morphology and life-history, and also the pathology, diagnosis and treatment of infection. *Tetrameres americana* is considered a synonym of *T. confusa*. Illnesses other than helminthiasis take second place in poultry production in Venezuela. M.MCK.

(650c) Annotating the filariae observed in domestic animals in Venezuela, Vogelsang notes the presence of *Setaria equina* in about 90% of the horses he has examined post mortem in different parts of Venezuela. *Onchocerca lienalis* is present in almost 100% of the cattle which arrive at the Maracay abattoir; although it is scarcely pathogenic to cattle, one animal presented an enormous, but apparently benign, hygroma of the cervical ligament, in which were found 15 litres of clear fluid containing nodules of the parasite. With the present importation of Mexican equines *O. cervicalis* may become established in Venezuela, but this parasite has not, in Vogelsang's experience, been associated with “mal de cruz” or “mal de nuca” in horses. M.MCK.

(650d) Using Terit, a preparation containing tetrachlorethylene, Mayaudon & Pérez have verified by subsequent faecal examinations the cure of ascarid and hookworm infections in over 100 dogs. The dose of 0.4 c.c. per kg. body-weight was administered on an empty stomach and followed by six hours' fasting. There were no toxic effects. This preparation is also recommended for cats and fur-bearing animals. M.MCK.

#### 651—Revista de Sanidad e Higiene Pública. Madrid.

- a. HERRERO AYLLÓN, R., 1955.—“Contribución al estudio de la lucha contra la hidatidosis.” 29 (9/10), 517–577.
- b. ROMAGOSA VILA, J. A., 1955.—“Sugerencias sobre la lucha contra la triquinosis.” 29 (11/12), 698–707.

(651a) Herrero Ayllón records, with comments and statistical analyses, 424 of the autochthonous cases of hydatid observed in persons in the province of Soria, Spain, between 1930 and 1953. In a bad year 100% of the sheep in Soria are infected. Ayllón suggests taxing dogs to reduce their numbers. In Argentina hydatid is recognized as an occupational disease and the relevant teachers' conferences and school instruction are worth noting. In Iceland no case of hydatid has appeared since 1940: a tribute to efficient control. M.MCK.

(651b) Romagosa Vila outlines methods for the control of trichinosis and gives a graph and table showing the human morbidity in Spain, which rose from 96 in 1948 to 411 in 1953, and the concomitant mortality which rose from three to nine. He suggests that transmission



was intensified in the dry years 1952 and 1953 when pigs were driven to catching rats through shortage of food. The dead animals including hundreds of mice which are fed daily to pigs from town garbage must play an important role in Spain.  
M.MCK.

# 552—Revista de la Sociedad Mexicana de Historia Natural.

- a. CABALLERO y C., E. & HIDALGO, E., 1955.—“ Helminths de la República de Panamá. XVI. Descripción de dos especies de tremátodos digeneos de *Florida caerulea* (L.).” **16** (1/4), 29-34.

(652a) *Apharyngostrigea ibis* and *Lyperosomum sinuosum*, from the migratory bird *Florida caerulea* in Panama, are illustrated and redescribed.  
M.MCK.

# 553—Revue d'Élevage et de Médecine Vétérinaire des Pays Tropicaux.

- a. DERBAL, Z., 1955.—“ Déparasitage des volailles et vermifuges enzymatiques.” **8** (4), 317-321.

(653a) Mixed helminth infections cause half of the deaths among poultry in French Sudan. Using more than 2,000 infected birds, Derbal compared the non-enzyme anthelmintics in use for the periodic worming of poultry with anthelmintics based on proteolytic enzymes. The former chemicals, e.g. tetrachlorethylene, arecoline hydrobromide, phenothiazine, sulphur and turpentine, weakened the birds, diminished or arrested growth and egg-laying, irritated the intestinal mucosa (as seen at autopsy eight days after treatment) and weakened the gut flora. The enzyme anthelmintic Vermizym proved harmless and very efficient, macerated worms being found in the gut of domestic fowls five days after treatment and no worms being seen in guinea-fowls 15 days afterwards. However, live cestodes were found in 4 of 16 birds thus treated.  
M.MCK.

# 554—Revue de Médecine Vétérinaire.

- a. EUZÉBY, J., 1955.—“ L'échinococcose larvaire.” **106**, 456-468.
- b. BAILENGER, J. & CLYTI, B., 1955.—“ Note sur le parasitisme intestinal des chiens par les vers.” **106**, 680-681.

# 555—Revue de Pathologie Générale et Comparée.

- a. DEPIEDS, R. & REMON, J., 1955.—“ Etat actuel de l'endémicité à *Dirofilaria immitis* chez le chien, dans la région d'Hyères (après les travaux récents de démostiquation).” **55** (668), 824-826.
- b. LAVIER, G., 1955.—“ Les éosinophilies parasitaires.” **55** (672), 1280-1295. [English summary pp. 1294-1295.]
- c. GALLIARD, H., 1955.—“ L'éosinophilie dans les filarioses.” **55** (672), 1296-1315. [English summary p. 1315.]
- d. DESCHIENS, R., 1955.—“ Étude comparée des hyperéosinophilies parasitaires et non parasitaires.” **55** (672), 1316-1335. [English summary pp. 1334-1335.]
- e. CROSNIER, R., 1955.—“ Filarioses et Notézine.” **55** (672), 1336-1362.
- f. DUFRENOY, J., 1955.—“ Interpretation graphique des lois mathématiques de Roberto Nettel F., relatives aux phénomènes de parasitose par *Onchocerca volvulus*. ” **55** (672), 1363-1369. [Discussion pp. 1370-1378.]

(655a) From a survey undertaken after the anti-mosquito campaigns in the Hyères region (coast of Provence) during 1951, 1952, 1953 and 1954, Depieds & Remon conclude that, although the mosquitoes appear to have been eradicated, *Dirofilaria immitis* is still common in dogs; a number less than four years old were found to be infected. They discuss the possible explanation of this and ask if it may be that the *Culex* and *Aedes* have been destroyed but the *Anopheles* left untouched.  
S.W.

(655b) In the first part of this paper Lavier reviews the general aspects of the eosinophilia provoked by helminth infections. Typically there is a latent period immediately after infection followed by an initial rapid increase in the number of eosinophils in the blood. The rate of increase then slows down and subsequently there is a gradual decrease in the number

of eosinophils. Up to a certain parasite load the peak eosinophilia increases with increasing numbers of helminths, but when this load is exceeded the eosinophilia may disappear altogether. In many instances reinfection produces only very slight eosinophilia, additional evidence of the development of immunity. In the second part of the paper the author annotates the helminths of man and animals which have been studied with reference to their capacity for provoking eosinophilia. s.w.

(655c) Blood eosinophilia resulting from filarial infection has long been recognized, in particular that due to *Wuchereria bancrofti*, *W. malayi* and *Loa loa*, but the actual causes of it are still controversial. The intensity of the eosinophilia varies from country to country but it is more marked in white races than in African or, especially, Asian peoples. There does not appear to be any correlation between the degree of eosinophilia and the degree of microfilaraemia or the severity of clinical manifestations. Tissue eosinophilia is characteristic of early lesions and is provoked only by the death of the adult worm and the microfilariae. The association between lung eosinophilia and broncho-pulmonary symptoms is discussed and the effect of anti-filarial treatment with hetrazan and of injections of cortisone and ACTH are described and illustrated in two tables. s.w.

(655d) Deschiens points out that, in spite of the large number of papers which have been published on it, the problem of the origin, nature and interpretation of eosinophilia remains one of the most obscure aspects of haematology. He then discusses the experimental work which has been done on parasitic and non-parasitic eosinophilia and suggests three criteria for differentiating the two, namely, (i) the frequency of response to a given agent, (ii) the shape of the curve when the degree of eosinophilia is plotted against time and (iii) the lability or irreducibility by cortisone or ACTH treatment. s.w.

(655e) From a comprehensive survey of the literature Crosnier concludes that notezine, although not an ideal drug, appears at present to be the best known treatment for filariasis. He discusses the various dose rates and treatment regimens which have been suggested, the use of antihistamines and other substances as adjuvants, the physical disturbances which may follow its use, accessory treatment with arsenical and other drugs and several other topics relating to its use and effects, both on the parasites and the hosts. s.w.

## 656—Revue Suisse de Zoologie.

- a. BAER, J. G., 1955.—“Revision critique de la sous-famille Idiogeninae Fuhrmann 1907 (Cestodes: Davaineidae) et étude analytique de la distribution des espèces.” 62, Suppl. pp. 3–51.

(656a) The subfamily Idiogeninae, as defined by Fuhrmann in 1932, contains five genera and 21 species for which Baer now provides a key. *Octopetalum*, *Inermicapsifer*, *Multi-capsiferina* and *Sobolevina* are synonyms of *Ascometra* and *Octopetalum gutterae* and *Rhabdometra mumida* are transferred to it as new combinations. *Ascometra vestita* is newly described with *Inermicapsifer otidis* as a synonym. The unarmed cysticeroid found in the locust *Nomadacris septemfasciata* at Lake Chad and identified as an *Octopetalum* larva by Baylis for Gwynne & Hamilton (1935) becomes *Ascometra* sp. Only four species of *Chapmania*, viz., *C. tauricolis* (type), *C. brachyrhyncha*, *C. macrocephala* and *C. tapika* are now recognized, *C. pinguis*, with *C. unilateralis* as a synonym, being transferred to *Otidiotaenia* as new comb. The generic names *Otidiotaenia* Beddard and *Schistometra* Cholodkowsky were both published in 1912 but Baer gives reasons for concluding that Beddard's paper had priority of publication. *Taenia conoideis* becomes *O. conoideis* n.comb. with *T. cuneata*, *O. eupodotidis*, *Schistometra togata*, *S. embiensis* and *S. wettsteini* as synonyms. *Paraschistometra* falls into the synonymy of *Otidiotaenia*. *P. macqueeni* becomes *O. macqueeni* n.comb. with *Schistometra korhaani* its synonym. The type material of Ransom's *Sphyrnchotaenia uncinata* has been re-examined and further details, with figures, are given. Baer concludes with a discussion of the host distribution of the species of Idiogeninae and the collateral evidence they afford on the phylogeny of their hosts. R.T.L.



**657—Rivista Italiana d'Igiene.**

- a. MAGAUDDA-BORZI, L. & LO DUCA, N., 1955.—“La infestazione da *Ancylostoma duodenale* nel Comune di Milazzo.” 15 (7/8), Supplement [Atti del 1°. Convegno Regionale Calabrese dell'Associazione Italiana per l'Igiene, Catanzaro, September 4-5, 1954], pp. 85-91.

(657a) The incidence of *Ancylostoma duodenale* among 788 of the male agricultural population and 1,147 of the female agricultural population in the municipality of Milazzo, Sicily, where a free service of faecal examination and treatment has been instituted, was nearly 20% in both groups. M.MCK.

**658—Roczniki Nauk Rolniczych. Seria A. Roślinna.**

- a. WILSKI, A., 1955.—“Prace naukowo-badawcze przeprowadzone w Instytucie Ochrony Roślin nad mątwikiem ziemniaczanym (*Heterodera rostochiensis* Woll.) oraz obecny stan badań.” [Investigations on potato-root eelworm (*Heterodera rostochiensis* Woll.) carried out at the Plant Protection Institute and their present stage.] 71 (2), 337-341.

(658a) Field and laboratory experiments showed that, in Poland, the development of *Heterodera rostochiensis* in potatoes lasts 8 to 11 weeks and sometimes over 12 weeks, depending on temperature and humidity. The best time to investigate planted fields for infection is the potato flowering season when most of the *Heterodera* females are golden-yellow and easily seen. A number of soil disinfectants were tried but only forbiat, at a rate of one ton per hectare, completely prevented infection of potatoes but it did not kill the cysts in the soil. Others, e.g. dichlorethane and paradichlorobenzene, did reduce the infection of the potatoes but, in effective doses, were at times detrimental to the plant. G.I.P.

**659—Sad i Ogorod. Moscow.**

- a. MISHKINA, L. P., 1955.—[Gall nematodes in the open ground.] Year 1955, No. 10, p. 87. [In Russian.]

(659a) The gall nematode has been spread from the hot-houses on a farm in the Gorkov region to seven kinds of crops and nine of weeds in the open ground, infesting particularly heavily tomatoes, cucumbers and cabbages, and providing a source of possible reinfection to the hot-houses. Precautions are advocated to prevent spread of infection to the surroundings, viz., care in disposing of hot-house soil, not placing infected plant boxes on the ground and the use of disinfectant foot mats in the hot-house. G.I.P.

**660—Sbornik Nauchnikh Trudov. Leningradski Institut Usovershenstvovaniya Veterinarnikh Vrachei.**

- a. MITSKEVICH, V. Y., 1955.—[Prolonged use of small doses of phenothiazine in *Trichostrongylus* infestation in reindeer.] 10, 20-26. [In Russian.]  
b. GODERDZISHVILI, G. I., 1955.—[Role of some species of fresh-water snails in fascioliasis in the Leningrad region and the effect of some mineral fertilizers on them.] 10, 219-223. [In Russian.]  
c. ZHELTAVI, V. V., 1955.—[Raillietiniasis in hens in Transcarpathian region.] 10, 231-233. [In Russian.]

(660a) Phenothiazine cannot be recommended as an anthelmintic for reindeer. Small daily doses of 0.05 gm. per kg. body-weight given for 28 to 32 days were non-toxic but ineffective against *Trichostrongylus* sp. Higher doses were effective to some extent but resulted in necrosis of the liver and in keratitis with transient blindness. G.I.P.

(660b) In several areas of the Leningrad region where cattle suffer from *Fasciola hepatica*, the usual limnaeid host was absent but 5.4% of *Galba palustris*, 1.2% of *Limnaea stagnalis*, 5.4% of *Radix ovata* and 3.3% of *R. pereger* were infected. Experimental infection of the first three species was also successful. A number of mineral fertilizers and their mixtures were tested for their toxicity to *G. palustris* and *R. pereger*. The best results were obtained with ammonium sulphate which at 0.1% concentration killed all *G. palustris* in 24 hours

and *R. peregir* in 30 hours. Superphosphate at 0.3% concentration killed *G. palustris* in 18 hours and *R. peregir* in 24 hours and at 0.5% in 12 and 18 hours respectively, while calcium chloride at 0.5% was also fairly effective. The chemicals did not inhibit the development of *F. hepatica* eggs. G.I.P.

**661—Sborník Vysoké Školy Zemědělské a Lesnické Fakulty v Brně. Rada B. Spisy Fakulty Veterinární.**

- a. OLEXA, J., 1955.—“Prieskum pľúcnych a črevných nematódov ošípaných v Prešovskom kraji.” [Investigation of pulmonary and intestinal nematodes of pigs in the Prešov region.] 3 (1), 26–28. [Russian summary p. 28.]
- b. ZAJÍČEK, D., 1955.—“Parazitární invaze u mladých nutrií.” [Parasitic infection of young nutria.] 3 (1), 29–38. [Russian summary p. 38.]
- c. DYK, V., 1955.—“Reservoárové druhy našich ryb.” [Species of our fishes as reservoir hosts.] 3 (1), 39–43. [German & Russian summaries p. 43.]
- d. BOUDA, J., 1955.—“Průzkum plicních a střevních červů ovcí ČSSS N.V. na jižní Moravě.” [Investigation of pulmonary and intestinal nematodes of sheep in C.S.S.S. N.V. in Southern Moravia.] 3 (1), 45–51. [Russian summary p. 51.]
- e. OTEVŘEL, B., 1955.—“Zamoření porážených koní na brněnských jatkách hlísticí *Setaria equina*.” [Setaria equina infection of horses slaughtered in the abattoir in Brno.] 3 (2), 81–87. [Russian summary p. 87.]
- f. KLIMEŠ, B. & ŠVEC, R., 1955.—“Askaridiosa drůbeže a její terapie.” [Ascariidiasis and its treatment with benzine.] 3 (2), 93–115. [English & Russian summaries pp. 112–113.]

(661a) Olexa discusses nematode infections of pigs in relation to their geographical occurrence in the Prešov region. The average infections found by examining ten pigs from each of ten districts of the region were *Oesophagostomum dentatum* in 33%, *Ascaris suum* in 24% and *Metastrongylus elongatus* in 25%. G.I.P.

(661b) *Strongyloides myopotami* and *Trichuris myocastoris* were the only helminths found in nutria on four farms near Brno. Zajíček considers the influence on these infections of the type of housing and watering provided for the animals. G.I.P.

(661c) Twenty species of fish are enumerated as reservoir hosts of parasites which affect fish farming in the rivers of Czechoslovakia. G.I.P.

(661d) In an examination of the faeces of 213 sheep two years after their importation from Russia into southern Moravia, the incidence of individual helminth infections were found to be *Dictyocaulus filaria* 42.7%, *Muellerius capillaris* 43.2%, *Protostrongylus kochi* 21.5%, *Bunostomum* sp. 1.3%, *Ostertagia* sp. 1.73%, *Trichostrongylus* sp. 1.64%, *Oesophagostomum* sp. 1.2%, *Trichuris* sp. 0.6%, *Moniezia* sp. 0.9% and *Dicrocoelium dendriticum* 1.3%. G.I.P.

(661e) *Setaria equina* was found at autopsy in 68 of 102 horses from near Brno. In 39 of the infected horses the worms were present only in the abdominal cavity. The blood was free of microfilariae in day-time, the proportion of males to females was 1:80 and the worms were larger than those reported in literature. G.I.P.

(661f) Pharmaceutical benzine in doses of 2 ml. per kg. of body-weight proved to be a cheap and a fully effective anthelmintic against *Ascaridia galli* of poultry. The best results were obtained by hypodermic injections, through the skin, into a half-filled crop. Worms were passed within eight hours. The treatment had no harmful effect either on egg-laying or on hatchability. An apparatus suitable for mass treatment is figured. G.I.P.

**662—Science and Culture. Calcutta.**

- a. MALLIK, P. C. & CHOUDHURY, B., 1955.—“Detection of root-knot nematode (*Heterodera schachtii* Schmidt) at Sabour, Bihar.” [Correspondence.] 21 (4), 213–214.

(662a) Root galls containing nematodes have been found on *Solanum melongena*, *Abelmoschus* [= *Hibiscus*] *esculentus*, *Lagenaria vulgaris*, *Carica papaya* and *Lycopersicon*



*esculentum*. The life-history of *Heterodera schachtii* is briefly described [although the causal nematode would appear more likely to be a species of *Meloidogyne*].  
M.T.F.

### 663—Shikoku Acta Medica.

- a. YAMAGUCHI, T., IJIMI, Y., FUJIOKA, S. & MURAKAMI, K., 1955.—[*Gnathostoma* from wild fowls in Shikoku Island. (II).] 6 (6), 33–34. [In Japanese: English summary p. 33.]

(663a) Third-stage larvae of *Gnathostoma spinigerum* were found in the following birds in the Kagawa and Tokushima Prefectures of Japan: *Milvus migrans lineatus*, *Egretta garzetta garzetta*, *Ardea cinerea jouyi* and in *Accipiter gentilis fujiyamae*, which is a new host record.  
R.T.L.

### 664—South African Journal of Medical Sciences.

- a. HEINZ, H. J. & BRAUNS, W., 1955.—“The ability of flies to transmit ova of *Echinococcus granulosus* to human foods.” 20 (3/4), 131–132.

(664a) A healthy dog was fed with a hydatid cyst from a sheep and when its faeces showed, on microscopical examination, that a good infection of *Echinococcus granulosus* had been established, they were exposed to *Sarcophaga tibialis*. From the surface of the flies few eggs were recovered but a considerable number of eggs were found in their intestines. Small hydatids were present in the livers of three rabbits which had been fed three months previously on the crushed intestines of exposed flies. It was also shown that after infective faeces and milk had been exposed simultaneously for 24 hours to house flies, *Echinococcus* eggs were present in the milk.  
R.T.L.

### 665—South African Journal of Science.

- a. BOLWIG, N., 1955.—“An experimental study of the behaviour and host-recognition in *Schistosoma cercariae*.” 51 (11), 338–344.

(665a) Bolwig studied the behaviour and host recognition of schistosome cercariae which emerged from *Physopsis africana*. Cercariae were shed continuously but at a slower rate in aquaria than in test tubes. Increases in temperature or light induced a greater liberation of cercariae. Cercarial vitality did not appear to increase with flocking together. Two factors cause the cercariae to attach themselves to the host, viz., chemicals contained in secretions from the sebaceous glands and the temperature of the skin, provided it is higher than that of the water. There was no reaction to light, blood, sweat, keratin, sodium chloride, lactic acid, urea, carbon dioxide, cholesterol or butter. Bolwig suggests that the mode of orientation to the stimulation is kline-kinetic.  
D.L.H.R.

### 666—Sovetskaya Meditsina.

- a. SOLOMKO, D. V., 1955.—[The effect of acridine in the treatment of taeniasis.] 19 (6), 64–65. [In Russian.]  
b. AIVAZYAN, V. A., 1955.—[Urinary schistosomiasis (bilharziasis).] 19 (6), 65–67. [In Russian.]

(666a) Thirty-eight patients with *Taenia* and one with *Diphyllobothrium* were treated on an empty stomach with 0.8–0.6 gm. of Acrichin [an analogue of atebrin] followed by a laxative. One case, suffering also from tuberculosis, received 0.4 gm. of Acrichin and 500 gm. of pumpkin seeds. Children were dosed according to age. All the patients passed worms, 53.8% with scolices. They stood the treatment well, in some transient nausea, vomiting, giddiness and general weakness lasting up to nine days were observed and one suffered from Acrichin psychosis.  
R.T.L.

(666b) Aivazyan gives the clinical history of urinary schistosomiasis in a man who came to Russia from Egypt. The infection was successfully treated by injections of foudadin. Previous cases of *Schistosoma haematobium* reported from Russia were also in persons from the tropics and from Persia.  
R.T.L.

**667—Station Progress Notes. Hawaii Agricultural Experimental Station.**

- a. ALICATA, J. E. & BONNET, D. D., 1955.—“A study of watercress areas in Hawaii as a possible source of human infection with the common liver fluke of cattle.” No. 107, 17 pp.

(667a) [These typescript notes were reproduced (with verbal emendations) under the same title in *Proc. helm. Soc. Wash.*, **23**, 106–108. For abstract see *Helm. Abs.*, **25**, No. 133c.]

**668—Tasmanian Journal of Agriculture.**

- a. RYAN, A. F., 1955.—“Stomach worm of calves.” **26** (4), 418–420.

(668a) All over Tasmania and the King and Flinders Islands, *Ostertagia ostertagi* is the most common and persistent cause of parasitism in calves and has become more frequent recently. Phenothiazine, nicotine sulphate and bluestone have not proved effective treatments and can be dangerous to weak animals. In Tasmania it is extremely difficult to get calves to take phenothiazine in a salt lick. Ryan recommends frequent rotation on pasture, better diet and the abandonment of the local practice of keeping calves in a yard continually used by animals.

R.T.L.

**669—Thérapie. Paris.**

- a. CAVIER, R. & GAULIN, J., 1955.—“L'activité anthelminthique des sels d'acides gras de l'éthylène-diamine, de la diéthylène-diamine, de la pipéridine et de la morpholine.” **10** (5), 805–809. [English & Spanish summaries p. 809.]

(669a) As piperazine is rapidly absorbed in the first part of the small intestine it has little activity against helminths in the last part of the small intestine or in the large intestine. Cavier & Gaulin have therefore tested the efficacy of a number of compounds having a lower solubility. The caprates, laurates, myristates, palmitates and stearates of ethylene diamine, diethylene diamine, piperidine and morpholine were tested against *Rhabditis macrocerca* in vitro and *Syphacia obvelata* in mice. Piperazine dilaurate was shown to be more effective and better tolerated than the base itself and is recommended for therapeutic trials.

S.W.

**670—Therapie der Gegenwart.**

- a. HALAMA, I., 1955.—“Die Atebrin-Dusche zur Bandwurmbabtreibung.” **94** (12), 451–452.

(670a) Halama compares the efficacy of atebirin with that of male fern extract in the treatment of Taenia infections in adults. Of 84 patients treated with male fern only 21 (25%) were cured (i.e., passed worm with scolex); of 32 given atebirin (8 gm. in 100 c.c. physiological saline by duodenal sound) 24 (77%) passed complete worms with scolices. Halama concludes that atebirin is the remedy of choice.

A.E.F.

**671—Tierärztliche Umschau.**

- a. BOCH, J., 1955.—“Der Wurmbefall des Reh- und Rotwildes in den bayerischen Bergen.” **10** (7), 249–252.  
 b. RASCHKE, E., 1955.—“Ein Vergleich der Wirksamkeit deutscher und amerikanischer Massnahmen zur Verhütung der menschlichen Trichinose.” **10** (11), 385–389.  
 c. HOLZ, J. & PEZENBURG, E., 1955.—“Behandlungsversuche mit Nematolyt beim Menschen und beim Hund.” **10** (11), 397–399.

(671a) From faecal or post-mortem examinations of deer from the Bavarian Alps, lungworm infections (*Dictyocaulus* and *Protostrongylus*) were detected in 88.4% of 354 red deer, and stomach or intestinal worm infections (*Haemonchus*, *Trichostrongylus* and *Chabertia*) were observed in 53.2%. In a few cases *Neoascaris vitulorum*, *Fasciola hepatica*, *Dicrocoelium dendriticum* or *Moniezia* were present. Among 202 roes, lungworms were noted in 84.1% and gastro-intestinal worms in 62.8%, comprising *Nematodirus*, *Ostertagia* and occasionally *Strongyloides*, in addition to those above. Medium to heavy elimination of eggs and larvae occurred mainly in young deer, and only at the end of March in the case of older animals.



Lungworms may appear to be well tolerated but Boch recalls that sick animals hide from the herd and once dead are soon eaten and therefore escape notice. The ten animals examined in late winter had died from their worm infections. The relevant preventive measures include adequate winter feeding of the deer and control of snail intermediaries. As far as could be ascertained there was no transmission of the parasites from deer to cattle and sheep or from cattle and sheep to deer on the Alps.

M.MCK.

(671b) In a compilation of statistics on trichinosis in pigs in various parts of the world Raschke shows that in Germany, where carcass inspection has been enforced since 1903, the incidence in pigs has steadily fallen from 0.061% in 1878 to 0.0003% in 1940. The German method of carcass inspection can therefore be recommended. It is pointed out that no noticeable reduction in trichinosis has occurred in the U.S.A. where there is no official inspection and control measures consist of freezing pork.

M.MCK.

(671c) When Holz & Pezenburg failed to cure an ascarid infection in a lion by administering nematolyt they tested the drug on a bitch and five puppies which had heavy ascarid infections. The dosage was 0.5 gm. of nematolyt per kg. body-weight given after 20 hours of fasting. The treatment was repeated after about two months at the dose of 1 gm. per kg. using an additional two dogs. All the dogs were passing eggs ten days after each treatment and were subsequently reported to be emaciated and eating poorly. Three died. Autopsy revealed invagination of the jejunum. The drug seemed to provoke an elimination of coccidian oocysts and this was confirmed when three out of six dogs which were apparently free of parasites eliminated oocysts after administration of nematolyt, in considerable numbers. Of another 30 dogs infected with ascarids and given nematolyt only six were successfully treated. Thirty-two patients harbouring *Ascaris*, *Trichuris*, *Taenia* and/or *Enterobius* received the drug according to the manufacturer's instructions and 19 [16 according to the summary] were free of worm eggs eight to ten days later.

M.MCK.

## 672—Tijdschrift voor Diergeneeskunde.

- a. ROBIJNS, K. G., 1955.—“Een infectie met *Acuaria uncinata* bij jonge zwanen.” 80, 728-730. [English, French & German summaries p. 730.]

(672a) Large tumours produced by *Acuaria uncinata* in the pars glandularis of the stomach wall of young swans eventually caused their death.

R.T.L.

## 673—Transactions of the Royal Society of South Australia.

- a. MAWSON, P. M., 1955.—“Some parasites of Australian vertebrates.” 78, 1-7.  
b. EDMONDS, S. J., 1955.—“Acanthocephala collected by the Australian National Antarctic Research Expedition on Heard Island and Macquarie Island during 1948-50.” 78, 141-144.

(673a) Four new nematodes species are described and figured from marsupials, viz., (1) *Spirostrongylus kartana* n.sp. from *Thylogale eugenii* from Kangaroo Island. It differs from *S. gallardi* chiefly in the length of the vestibule (60  $\mu$ ) and of the female tail (50  $\mu$ ) *Pharyngostomylus parma* and *P. gallardi* are both transferred to *Spirostrongylus*. The genus therefore now contains four very similar species to which a key is given. (2) *Labiostrongylus kungi* n.sp. from *Macropus major* in New South Wales is very close to *L. longispicularis* but the dorsal ray differs very slightly in form and the spicules are 5.2 to 6 mm. long. (3) *Macropostrongylus lasiorhini* n.sp. taken from *Lasiiorhinus latifrons*, South Australia, is very close to *M. baylisi* but the buccal capsule is only 50 to 55  $\mu$  deep and the six cushion-like cephalic papillae have very short setae. The alate spicules are 1 mm. long, the leaf crown has four large elements, two only arising from the mid-length of the buccal capsule and there are no smaller elements. (4) *Phascolostrongylus stirtoni* n.sp. from *Lasiiorhinus latifrons* resembles *P. turleyi* but the six cephalic papillae are each composed of two segments and the excretory pore is at the level of the posterior end of the oesophagus. Brief notes are given on *Pharyngostomylus alba* from *Macropus major* in New South Wales; *Physaloptera bancrofti* and

*Ophidascaris filaria* from *Aspidites melanocephalus*, in Queensland; *Diplotrriaena alpha* from a field wren *Calamanthus fuliginosus*, and *Streptocara recta* from *Podiceps ruficollis* both from South Australia. R.T.L.

(673b) Edmonds reports the occurrence (1) at Heard Island, of *Aspersentis austrinus* in the fishes *Notothenia coriiceps* and *N. cyanobranchia*, and *Corynosoma clavatum* in the shag *Phalacrocorax atriceps*, (2) at Heard Island and Macquarie Island, of *C. bullosum* from the sea elephant *Mirounga leonina* and the sea leopard *Hydrurga leptonyx*, and (3) at Macquarie Island, of immature *Corynosoma* sp. in the penguin *Pygoscelis papua*. Free and encysted larval forms in the mesentery of *Notothenia coriiceps* were identified as those of *C. bullosum*. *Rhadinorhynchus wheeleri* Baylis, 1929 is considered to be synonymous with *Aspersentis austrinus*. R.T.L.

#### 674—Trudi Armyanskogo Nauchno-Issledovatel'skogo Veterinarnogo Instituta.

- a. MANUKYAN, Z. K., 1955.—[Non-specific tuberculin reactions in cattle with fascioliasis.] 8, 25-28. [In Russian: Armenian summary p. 28.]
- b. DAVTYAN, E. A. & SCHULTS, R. S., 1955.—[Active immunization of sheep against *Cystocaulus nigrescens*.] 8, 93-116. [In Russian: Armenian summary pp. 114-116.]
- c. DAVTYAN, E. A., 1955.—[Active immunization of sheep against *Dictyocaulus*.] 8, 117-129. [In Russian: Armenian summary pp. 128-129.]
- d. GRIGORYAN, G. A., 1955.—[Treatment of farm animals in the Akhtin district for the more important helminth infections.] 8, 131-142. [In Russian: Armenian summary pp. 141-142.]
- e. SHAGINYAN, E. G., 1955.—[Mass treatment of fascioliasis in buffaloes with carbon tetrachloride.] 8, 143-149. [In Russian: Armenian summary p. 149.]
- f. GRIGORYAN, G. A. & SVADZHYAN, P. K., 1955.—[Failure of hexachlorethane-bentonite suspension in the treatment of microcoeliasis in sheep and goats.] 8, 151-153. [In Russian: Armenian summary p. 153.]
- g. SOGOYAN, I. S., 1955.—[Pathological changes in experimental *Fasciola gigantica* infestation of sheep.] 8, 155-165. [In Russian: Armenian summary pp. 164-165.]
- h. SOGOYAN, I. S., 1955.—[Pathology and pathogenesis of *Cystocaulus nigrescens* infestation in sheep.] 8, 167-177. [In Russian: Armenian summary pp. 175-176.]

(674a) According to Manukyan's observations *Fasciola* infections did not affect the appearance of the allergic reactions in the double intradermal tuberculin test. G.I.P.

(674b) Several types of *Cystocaulus nigrescens* antigens were tested on small groups of sheep, six to seven months old, and their effect determined by infection with about 1,000-3,000 larvae 12 to 16 days later. None of the antigens produced absolute immunity. The maximum effect with the saline extract of *Cystocaulus* lung nodules was obtained only after six intratracheal injections, it therefore loses any practical significance. Intramuscular and intravenous inoculation with 4,000-5,000 live larvae was far more effective than the injection into the trachea or muscles of a suspension from powdered larvae or intramuscular inoculation with 6,000-12,000 killed larvae. Addition of saponin to the antigens resulted in an increased immunity. Some of the control lambs exhibited natural immunity to *C. nigrescens*. G.I.P.

(674c) *Dictyocaulus* antigens were tested on lambs, aged four to five months. Saline extract from mesenteric lymph nodules was injected into the trachea or muscles in three doses of 10, 15 and 25 ml. at intervals of eight or nine days. Fourteen days after the last injection, 500 infective larvae were administered and only 1.5-1.9% developed, as opposed to 8.4% in the controls. Absolute immunity was obtained in three lambs which had received the antigen plus saponin, but these results require confirmation. For the preparation of the antigen, four parts by weight of physiological solution were added to the washed and ground lymph nodules obtained from lambs which had been heavily infected three to four days previously, and the mixture was kept at 2°C.-3°C. for seven to eight days. After filtration, 0.3% of formalin was introduced and the antigen kept at 37°C.-38°C. for 24 hours. Saline extract from adult *Dictyocaulus*, prepared by a similar method, was given in three doses of 10, 15 and 20 ml. at intervals of eight to nine days. In the lambs injected into the trachea or into the muscles, 7% and 0.7% of larvae respectively developed from the challenging infection, as



posed to 15% in the controls. Absolute immunity occurred in three or four lambs after intramuscular injection of the antigen and saponin. Saline extract from infected lung tissue was ineffective. Injection of live larvae is not recommended because these may develop normally.

G.I.P.

(674d) In the mountainous Akhtin district of Armenia the commonest helminths among farm animals were lungworms, trichostrongylids, *Moniezia*, *Fasciola*, *Echinococcus*, *Cysticercus* and *Parascaris*. Worming of sheep against *Dictyocaulus*, if repeated two to three times before the animals were taken to summer pastures, resulted in a practically complete cure. 15–18 ml. of Lugol's solution for adults and 12–15 ml. for young animals were intubated into the trachea of sheep lying on their backs, thus ensuring simultaneous entry into both lungs. Reinfection by contact with infected stock while on pasture occurred in September (2.5–2.8%) and rose up to 60% in October.

G.I.P.

(674e) Intubation, into the rumen, of 0.04 ml. of carbon tetrachloride per kg. body-weight proved an efficient and practical method of treating *Fasciola gigantica* in buffaloes. Dosing was followed by depression of milk production (sometimes to 40–50%) for one week. As carbon tetrachloride does not affect immature worms a total cure was obtained only after three applications at intervals of two to two-and-a-half months. In the Ararat valley, where buffaloes are one of the basic sources of this infection, four yearly treatments at two to two-and-a-half months intervals are recommended.

G.I.P.

(674g) The migration of *Fasciola gigantica* was followed in 27 lambs and sheep. The young flukes when boring into the wall of the intestine fell into the lymph and blood vessels and were carried to the liver. Intestinal haemorrhages and enlargement of the blood vessels in the liver parenchyma were first observed two to three days after infection. Only a proportion of the flukes reached the liver by passing through the intestinal wall into the abdominal cavity. In heavy infections the worms migrating in the liver caused acute traumatic hepatitis, which might be lethal. The reaction was less pronounced in weaker infections and, following the passage of flukes into the bile-ducts, the infection took on a chronic form. Those larvae which reached the lungs did not develop. Changes in other parenchymatous organs were the host's reaction to the prolonged action of the excretory products of the parasite.

G.I.P.

(674h) Sogoyan, having described the changes invoked by larval *Cystocaulus nigrescens* in the intestinal wall of sheep [see *Trud. armyan. nauchno-issled. Vet. Inst.*, 1950, 7] now examines, in 36 experimentally infected sheep, the pathological changes produced by the migration and development of these larvae. 24 hours after infection the larvae from the intestinal wall had already travelled with the lymph flow to the mesenteric lymph nodes, mainly of the large intestine, where their presence caused desquamatory lymphadenitis. 48 hours after infection the larvae had passed into the lung tissue forming numerous nodular cysts. Reproduction by the worms 30 days later was accompanied by the development of large cystocaulous nodules.

G.I.P.

## 75—Trudi Zoologicheskogo Instituta. Akademiya Nauk SSSR.

- a. GLUKHOVA, V. M., 1955.—[On a new species of the genus *Gyrodactylus* Nordm. (Monogenea) from the flounders (*Pleuronectes flesus bogdanovi* Sand. and *Liopsetta glacialis* Poll.) of the White Sea.] 18, 36–38. [In Russian.]
- b. GINETSKAYA, T. A. & NAUMOV, D. V., 1955.—[A new representative of the rare genus of trematodes *Cloeophora* Dietz (Trematoda: Echinostomatidae) from the turnstone (*Arenaria interpres* L.).] 18, 39–41. [In Russian.]
- c. KIRYANOVA, E. S., 1955.—[Quackgrass nematode—*Paranguina agropyri* Kiryanova n.g., n.sp. (Nematoda).] 18, 42–52. [In Russian.]
- d. KIRYANOVA, E. S. & PUCHKOVA, L. V., 1955.—[A new parasite of the beet weevil—*Neoapectana bothynoderi* Kiryanova et Puchkova n.sp. (Nematoda).] 18, 53–62. [In Russian.]
- e. POLYANSKI, Y. I., 1955.—[The parasitology of fish from the northern seas of the U.S.S.R. Parasites of fish from the Barents Sea.] 19, 5–170. [In Russian.]

- f. GUSEV, A. V., 1955.—[Monogenetic trematodes of fish from the Amur river system.] **19**, 171-173. [In Russian.]
- g. PETRUSHEVSKI, G. K., 1955.—[On the question of the inter-relationships of parasites in fish.] **21**, 44-52. [In Russian.]
- h. DOGEL, V. A., 1955.—[The general character of the parasite fauna of marine animals in the Far East.] **21**, 53-61. [In Russian.]
- i. BIKHOVSKI, B. E. & GUSEV, A. V., 1955.—[The study of monogenetic trematodes with a primitive type of opisthaptor armature.] **21**, 110-118. [In Russian.]
- j. GUSEV, A. V., 1955.—[New species of monogenetic trematodes from the gills of *Squaliobarbus curriculus* (Richardson) from rivers in China.] **21**, 119-124. [In Russian.]
- k. BIKHOVSKAYA-PAVLOVSKAYA, I. E., 1955.—[Trematodes of birds in Tadzhikistan.] **21**, 125-151. [In Russian.]
- l. KIRYANOVA, E. S., 1955.—[New species of Nematomorpha from the U.S.S.R.] **21**, 152-160. [In Russian.]

(675a) *Gyrodactylus unicopula* n.sp. from the gills of *Pleuronectes flesus bogdanovi*, in the White Sea, is 0.25-0.33 mm. long. The holdfast anchors are 0.046 mm. long and the basal plate averages 0.02 mm.  $\times$  0.033 mm. The inner processes of the anchors curve towards the mid-line, the outer processes are completely reduced and their connecting plate is absent, distinguishing the new species from all known species of *Gyrodactylus*. Specimens of *G. unicopula* from *Liopsetta glacialis* are smaller. G.I.P.

(675b) *Cloeophora maris-albi* n.sp. is figured from *Arenaria interpres* in the White Sea. It differs from *C. micata* in having larger eggs (0.092 mm. long), a straight uterus and a long genital bursa which stretches down to the first testis. There are 29 collar spines; the corner spines are 0.033 mm., the others 0.046 mm. in length while in *C. micata* the six corner spines are absent. G.I.P.

(675c) Kiryanova figures and describes from the European part of Russia *Paranguina agropyri* n.g., n.sp., reported previously by her but not described. These tylenchids form galls on the lower part of stems of *Agropyrum repens*. *Paranguina* is like *Anguina* in the posterior position of the vulva, the unpaired sex organs, and the presence in males of spicules, an accessory piece and bursa; but it differs from *Anguina* in having longitudinal cuticular striations, six chitinous transverse ridges on the head, and four, not three, pharyngeal glands which lie at the sides of the pharynx near its middle. G.I.P.

(675d) *Neoaplectana bothynoderi* n.sp., is figured from larval *Bothynoderes punctiventris* in Russia. Its size is variable; usually the females are 1,200-2,200  $\mu$  long by 100-253  $\mu$  and the males are 740-940  $\mu$  long by 104-107  $\mu$ , while in *N. feltiae*, the only other Russian species, the females are 3,800-5,940  $\mu$  and the males 1,335-1,420  $\mu$  long. *N. bothynoderi* differs from the smaller *N. menozzii* in the structure of the spicule, accessory piece and mouth cavity which is 8  $\mu$  long and 12  $\mu$  wide and contains small lateral teeth. The tail terminates in a hair. By having a long muscular pharynx with a terminal bulb containing a valve and 12 spine-like lip papillae but no defined lips the new species also differs from *N. bibionis*, which is 5 mm. long. The possibility of using *N. bothynoderi* for the destruction of *B. punctiventris* is discussed. G.I.P.

(675e) In 46 fish species, about half the common fish population of the Barents Sea, Polyanski found 58 Trematoda, 17 Cestoda, 12 Nematoda, 3 Acanthocephala (2 larval) and 3 ichthyobdellid leeches. Short notes are given for each species; many are new records for the Barents Sea. Four new trematodes are figured and described. *Anisorchis opisthorchis* n.g., n.sp. from the intestine of *Leptagonus decagonus* and *Cottunculus microps* is placed in Allocreadiinae due to its smooth cuticle and is characterized by the caudal position of the testes, the absence of a seminal receptacle and by the terminal oral pore, which, surrounded by the sucker and leading into the pharynx, forms a funnel. The prepharynx is poorly developed and the vitellaria extend posteriorly only as far as the testes. *Gyrodactylus dogieli* n.sp., from *Limanda limanda*, resembles *G. arcuatus* and *G. elegans* in the ear-shaped projections on the



asal bar, but is 0.25-0.36 mm. long, with the marginal hooklets 0.025-0.027 mm. and the anchors 0.041-0.046 mm. long, and 0.02-0.023 mm. long blades. The distinctive characters of *Helicometra insolita* n.sp. from *Lumpenus fabricii*, *L. lampretaeformis* and *Icelus bicornis* are a terminal funnel-shaped oral sucker, the lobed testes and a slightly three-lobed ovary. The vitellaria lie around the caeca up to the ventral sucker. *Steganoderma spinosa* n.sp. from *Anarhichas lupus* is 1.8-2.37 mm. long. The diameter of the oral sucker is 0.29-0.37 mm., of the ventral sucker 0.42-0.5 mm. and of the almost spherical pharynx 0.11-0.14 mm. A oesopharynx is absent. The oesophagus is 0.12 mm. long but is well developed and the caeca are one quarter of the body length. The cirrus is 0.52-0.88 mm. long. A list of the parasites under their hosts includes also species registered for Russia by other authors. Polyanski then discusses the oecology and the depth of distribution in the Barents Sea of parasites of fish, various aspects of the parasite fauna of Gadidae, Pleuronectidae, Anarhichadidae, Cottidae, Cottunculidae and Salmonidae, the specificity of parasites of marine fish and the influence of fish parasites on economy.

G.I.P.

(675f) Gusev describes 109 monogenetic trematode species as well as four *Dactylogyrus* and three *Gyrodactylus* forms not specifically identified, from fish in the Lake Khanka basin. 1 of the 100 fish species existing in the region were examined and 58 found infected. The 13 new trematode species were: *D. malewitszkajae* n.sp. on *Phoxinus phoxinus mantschuricus*; *D. czerskii* n.sp. on *P. czekanowskii czerskii*; and *D. gvosdevi* n.sp. on both these species; *D. grandicirrus* n.sp. and *D. rarus* n.sp. on *Hemibarbus maculatus*; *D. spirocirrus* n.sp., *D. securiformis* n.sp. and *D. rostrum* n.sp. on *H. maculatus* and *H. labeo*; *D. obscurus* n.sp. and *D. squameus* n.sp. on *Pseudorasbora parva*; *D. zachvatkini* n.sp., *D. dubius* n.sp. and *D. clypeatus* n.sp. on *Gnathopogon chankaensis*; *D. trullaeformis* n.sp. on *Paraleucogobio strigatus*; *D. laymanianus* n.sp., *D. singularis* n.sp. and *D. maximus* n.sp. on *Chilogobio czerskii*; *D. navicularis* n.sp. on *C. czerskii* and *Sarcocheilichthys sinensis lacustris*; *D. gobioninum* n.sp., *D. markewitschi* n.sp. and *D. facetus* n.sp. on *Pseudogobio rivularis* and *Saurogobio dabryi*; *D. sparsus* n.sp. on *Rostrogobio amurensis*; *D. primarius* n.sp. and *D. kurenkowi* n.sp. on *Opsariichthys uncirostris amurensis*; *D. slasnikowi* n.sp. and *D. zalesskyi* n.sp. on *Plagiognathops microlepis*; *D. rimsky-korsakowi* n.sp. and *D. tendiculus* n.sp. on *P. microlepis* and *Xenocypris macrolepis*; *D. strelkowi* n.sp. on *Megalobrama terminalis*; *D. petruschewskyi* n.sp. on *Parabramis pekinensis*; *D. palliatus* n.sp. on *M. terminalis* and *P. pekinensis*; *D. contortus* n.sp. and *D. follicirrus* n.sp. on *Erythropterus erythropterus*; *D. fragilis* n.sp., *D. scalpelliformis* n.sp. and *D. florircirrus* n.sp. on *E. mongolicus*; *D. alatocirrus* n.sp., *D. branchialis* n.sp., *D. pterygialis* n.sp. and *D. pierocleidus* n.sp. on *E. oxycephalus*; *D. pellucidus* n.sp. on *E. erythropterus* and *E. oxycephalus*; *D. erythroculteris* n.sp. on *E. erythropterus*, *E. mongolicus* and *E. oxycephalus*; *D. peltatus* n.sp., *D. montschadskyi* n.sp. and *D. flagellicirrus* n.sp. on *Culter alburnus*; *D. leucisculus* n.sp., *D. pusillus* n.sp. and *D. alatoideus* n.sp. on *Hemiculter leucisculus lucidus*; *D. eigenmanni* n.sp., *D. clavaeformis* n.sp., *D. proprius* n.sp., *D. brachius* n.sp., *D. latituba* n.sp., *D. nikolskyi* n.sp. and *D. panmosus* n.sp. on *H. eigenmanni*; *D. tridigitatus* n.sp. and *D. peculiaris* n.sp. on *H. leucisculus lucidus* and *H. eigenmanni*; *D. achmerowianus* n.sp. on *Elopichthys bambusa*; *D. baueri* n.sp. on *Carassius auratus gibelio*; *D. achmerowi* n.sp. on *Cyprinus carpio*; *Acolpenteron* (s.l.) *ignotus* n.sp. on *Ancistrorhynchus asmusi*; *Ancylodiscoides poljanskyi* n.sp. on *Pseudobagrus fulvidraco*; *Gyrodactylus gobioninum* n.sp. on *Pseudogobio rivularis*, *Chilogobio czerskii*, *Rostrogobio amurensis*, *Sarcocheilichthys sinensis lacustris*, *Pseudorasbora parva* and *Hemibarbus maculatus*; *G. paratatus* n.sp. on *Misgurnus fossilis anguillicaudatus*; *G. monstrosus* n.sp. on *M. fossilis anguillicaudatus*, *Cobitis taenia* and *Lefua costata*; *G. curiosus* n.sp. and *G. lefua* n.sp. on *L. costata*; *G. ophioccephali* n.sp. on *Ophioccephalus argus warpachowskyi*; *Ancyrocephalus* (s.l.) *pavlovskyi* n.sp. on *Hemibarbus maculatus* and *H. labeo*; *A. skrjabini* n.sp. on *H. labeo*; *A. polymorphus* n.sp. on *Gnathopogon chankaensis*; *A. assimilis* n.sp. on *Chilogobio czerskii* and *A. perplexus* n.sp. on *Erythroculter mongolicus*. *Haliotrema mogurndae* Yamaguti, 1940 becomes *A. mogurndae* comb. Gusev discusses in detail the character of the monogenetic trematode fauna of the Mur river system, which includes the Khanka basin, giving a list of the trematodes with their hosts and one of the local fish fauna.

G.I.P.

(675g) Petrushevski studied the groupings of parasites in a large number of fish from the lakes Ladoga and Pskov, the river Lena and the Kursk Bay (Kurisches Haff) and discusses two examples of antagonism: (i) between *Myxidium lieberkühni* and *Phyllodistomum folium* in the urinary bladder of pike where *M. lieberkühni* is the dominant species and (ii) between *Proteocephalus exiguus* and *Echinorhynchus salmonis* in the intestine of *Coregonus albula*. A study of the infection of different fish organs showed that on the gills monogenetic trematodes were dominant; in the intestine digenetic trematodes were dominant in the crucian carp and perch, cestodes in the pike, burbot and flounder and acanthocephalans in the stickleback. Of 82 fish examined, only 10% harboured two species, simultaneously, in the liver. G.I.P.

(675h) Dogel discusses the parasitic fauna of Far Eastern Seas and concludes that (i) it is unusually rich, as the Russian-Japanese part of the Pacific Ocean contains about three to four thousand species; (ii) the range of hosts is wide, the parasites occurring in groups of hosts which are not usual for them in the Atlantic; (iii) there are some which were originally freshwater species but which have become acclimatized together with their host (e.g. *Leuciscus brandti*) and (iv) this fauna deserves further study due to its richness and abundance in characteristic features. G.I.P.

(675i) *Pseudacolpenteron pavlovskii* n.g., n.sp. is described and figured from *Cyprinus carpio* in the Volga Delta and northern Caucasus. It is characterized by a thin cuticle, two pairs of distinct eyes and a well developed opisthaptor with only 14 hooks (a secondary adaptation to parasitism on the fins and gills of fish). In a revision of *Acolpenteron*, in connection with the above species, *A. ignotus* is transferred to *Pseudacolpenteron* as a new combination, leaving *A. ureteroecetes*, *A. catostomi* and *A. nephriticum*, which parasitize the urinary bladder of fish, as they are characterized by a thick cuticle, rudimentary eyes in adult worms and a little-developed opisthaptor with only 14 hooks. Both genera are placed in Dactylogyridae (*Acolpenteron* being transferred from Calceostomatidae) and their phylogenetic relationships are discussed. G.I.P.

(675j) Gusev describes *Dactylogyrus duplus* n.sp., *D. magnicirrus* n.sp., *D. sungariensis* n.sp., *D. chinensis* n.sp. and *D. charbinensis* n.sp. from the gills of preserved *Squaliobarbus curriculus* originally collected in China. Bearing in mind the distinct similarity of the new form to some species of *Dactylogyrus* parasitizing various cultrineid fishes and the specificity generally exhibited by species of *Dactylogyrus* he suggests that *Squaliobarbus* belongs to Cultrinae and not to Leuciscinae. G.I.P.

(675k) Of 706 birds (68 species) collected between 1939 and 1944 in Tadzhikistan, 24.8% were infected with trematodes; but the infection comes to 58.9-100% if those orders with only a small number of birds examined are disregarded. Only 7.2% of Passeriformes were infected. The 61 trematode species (13 families) recorded are discussed in relation to their hosts, infectivity and distribution and are listed under hosts. The bird fauna of Tadzhikistan is basically composed of birds migrating for the winter from West Siberia and Central Asia. In Tadzhikistan the infection of birds is higher but the intensities and number of trematode species are lower than in West Siberia. G.I.P.

(675l) Three new species of Nematomorpha are described and figured from Russia. *Gordionus bilobatus* n.sp. from near Lake Baykal is described from one female measuring 122×0.7 mm. *Gordius pavlovskii* n.sp., known from one male only from the North Dvina basin, is 125×0.45 mm. in size, has characteristic glands under the cuticle and possesses rounded areolae of two sizes, 2-3  $\mu$  and 4-7  $\mu$  in diameter which carry knobby spines. *G. georgiensis* n.sp., from the river Kurtskhana in Georgia, is similar to *G. pavlovskii* in the structure of the areolae, but differs from it by having smaller areolae (2  $\mu$  in diameter), a larger body (the females are 285-385×1 mm.) and light, longitudinal and transverse lines crossing one another on the cuticular surface. G.I.P.



### 5—Türk Veteriner Hekimleri Derneği Dergisi.

- a. KURTPINAR, H., 1955.—“Tetrachlorure de carbone'u deri altına şırınga ederek koyun ve keçilerin fascioliasis'inin tedavisi üzerinde yaptığımız ilk tecrübeler.” 25 (106/107), 2371-2373. [English summary p. 2373.]
- b. MERDIVENCI, A., 1955.—“Yurdumuz sığır (*Bos taurus*) larında ilk *Cooperia oncophora* (Railliet, 1898) Ransom, 1907 Müşahedesi.” 25 (108/109), 2478-2486. [English summary p. 2482.]
- c. MERDIVENCI, A., 1955.—“Evcil ördek (*Anas boschas dom.*) lerimizde ilk defa olarak bulduğumuz *Hypoderaeum conoideum* (Bloch, 1782): Trematoda (Fam. Echinostomidae).” 25 (110/111), 2553-2560. [English summary p. 2557.]

(676a) As a result of tests on eight sheep and a goat Kurtpinar is of opinion that the subcutaneous injection of 2 c.c. of carbon tetrachloride is as effective as oral administration in fascioliasis.

R.T.L.

(676b) The occurrence of *Cooperia oncophora* in Turkey is recorded for the first time.

R.T.L.

(676c) The occurrence in Turkey of *Hypoderaeum conoideum* in the domestic duck is reported for the first time. Its biology, pathology, treatment and prophylaxis are outlined.

R.T.L.

### 7—Verhandlungen der Deutschen Zoologischen Gesellschaft. (Zoologischer Anzeiger, Supplementband 19).

- a. PIEKARSKI, G., 1955.—“Über das Parasit-Wirt-Verhältnis.” Year 1955, pp. 349-362.
- b. STAMMER, H. J., 1955.—“Die Parasiten deutscher Kleinsäuger.” Year 1955, pp. 362-390.
- c. OSCHKE, G., 1955.—“Die Präadaptation freilebender Nematoden an den Parasitismus.” Year 1955, pp. 391-397.
- d. RÜHM, W., 1955.—“Über die Biologie und Ökologie *Sphaerularia*-artiger parasitischer Nematoden in Rüsselkäfern.” Year 1955, pp. 397-403.

(677a) Piekarski illustrates by examples the defensive cellular and humoral reactions induced by animals and man against parasites. Parasites overcome the defensive mechanisms of their hosts by such developments as suckers to overcome the peristalsis of the gut and chemical agents to counteract enzyme action.

M.MCK.

(677b) Stammer gives a host parasite list of 22 species of small mammals (a total of 11 specimens) which he examined in Germany. The list comprises nine trematode species, 10 adult and six larval cestode species (of which two have not yet been described and six are new for Germany) and 49 adult and three larval nematode species (of which three are undescribed and 21 are new for Germany). The total numbers, and percentages, of males and females of each nematode species are listed. Stammer describes as *Hymenolepis curiosa* n.sp. a proliferating larva from the myriapod *Craspedosoma alemannicum* collected around Erlangen. In the earliest stage found, that of a single cyst, buds to produce a profuse mass of stalked buds which eventually become detached. Each of these develops four globular outgrowths, arranged in the shape of a cross, enclosing an invaginated scolex with rostellar hooks 4.2-4.5  $\mu$  long; each of two opposing outgrowths has a pair of small protruberances and one of the other outgrowths carries the remnant of the stalk. Thousands of these cross-shaped bodies fill the body-cavity of the host. Stammer quotes other examples of asexual reproduction in cyclophyllids, discusses the uneven geographical distribution of some nematodes of small mammals and illustrates the host specificity of nematodes in small mammals by reference to species of *Syphacia*, *Trichuris* and trichostrongylids. He found larvae of *Rhabditis strongyloides*, sometimes in hundreds, under the eyelids of *Microtus agrestis*, *M. arvalis*, *Clethrionomys glareolus*, *Mus musculus* and *Apodemus sylvaticus*. Only in *A. sylvaticus* were there *R. strongyloides* larvae under the skin.

M.MCK.

(677c) Among the factors predisposing to parasitism in free-living nematodes and especially evident in the saprozoic forms, Oschke notes the laying of large numbers of eggs, the development of hermaphroditism or parthenogenesis and the capacities of many saprozoic

forms to adjust fairly quickly to changes in osmotic pressure and to live under conditions of oxygen deficiency and relatively high temperatures. He traces some of the intermediate steps between free-living and parasitic life-histories as seen in saprozoic nematodes. M.MCK.

(677d) From a study of *Sphaerulariopsis* in vitro and under natural conditions in the weevil *Pissodes piniphilus*, the life-cycle appears to be as follows. The female nematode in the adult weevil develops a large uterine prolapse and eventually dies. This uterine prolapse persists and eliminates eggs or, in the case of older parasites, eggs and larvae. The larvae moult twice, leave the host and enter the egg tunnels of the weevils, where they await the hatching of the weevil larvae and the build-up of excrement and gnawed detritus. After two further moults the larvae become fully developed adults and reproduce in the free-living states for many generations. In dry conditions they coil up and live in a state of anabiosis. When the weevil larvae reach the pre-pupal stage a new kind of partially neotenus adults with immature females begins to supersede the fully developed adults. Intermediate forms are also apparent. The partially neotenus females are fertilized and bore into the host larvae and pupae where they develop the uterine prolapse. There is a lapse of eight to eleven months before sexual maturity is reached and this coincides roughly with the attainment of maturity by the host. The worms die if the weevils are also infected with ichneumon flies. The nematodes parasitic as adults in insects (apart from those with alternation of generations) can be grouped according to the nature of the free-living stage into five main types. (i) The females leave the host after copulation and immediately enter another host. (ii) The larvae are free-living after one moult, which may take place in the host. They remain as adults in the larval skin until the host larvae have hatched; the females are fertilized and become parasitic while the males die. (iii) The larvae leave the host and are able to live in anabiosis for a short time or remain under the wing case of the host. After one moult, several days or weeks later, the females are fertilized and return into the host. (iv) The free-living larvae moult twice. Only the fertilized females return to the host; the males die. (v) In the *Sphaerularia* type of nematodes the free-living stage scarcely differs from that of saprozoic nematodes. Contrary to stages (i) to (iv) the mature worms feed while free-living. M.MCK.

#### 678—Verslag van het Centraal Instituut voor Landbouwkundig Onderzoek. Wageningen.

- a. DOEKSEN, J. & HEMKES, O. J., 1955.—“De bestrijding van de leverbotslak.” Year 1954, pp. 78–83. [English summary p. 83.]

(678a) Doeksen & Hemkes report on experiments carried out on farms in Holland to determine the best method of controlling *Limnaea truncatula* and thus reducing liver-fluke infection in cattle. A preliminary test in 1951 showed that common salt at a rate of 45 kg. per 100 metres of ditch killed 96.3% of snails, while di-nitro-ortho-cresol (DNC) at 5.3 litres per 100 metres killed 95.7%. The DNC however was much easier to apply. In 1954 more detailed tests on four farms proved conclusively that DNC (this time at 15 litres per 100 metres) was more effective than salt. It is recommended that in the first year there should be two applications (one in spring and one in summer or autumn) but that in subsequent years a single application in spring will suffice. The cost, in the first year, works out at 20 florins [about £2] per hectare. As it has been estimated that milk losses due to liver-fluke cost 33 florins per hectare the treatment is more than justified for this factor alone. The authors consider that 15 litres DNC per 100 metres is too much and that 6 litres would probably be satisfactory. A.E.F.

#### 679—Veterinaria Italiana.

- a. GIROTTTO, V., 1955.—“Dati sulla diffusione della singamosi nel Veneto e risultati della sua terapia con antimonitarttrato di bario e potassio.” 6 (10), 992–1002. [English, French & German summaries p. 1001.]  
b. PELLEGRINI, D., 1955.—“Trichinosi bovina e miosite eosinofila.” 6 (10), 1061–1064.



- c. PANEBIANCO, F. & SCIUTTERI, G., 1955.—“Indagini sulla diffusione delle elmintiasi nella popolazione canina della Provincia di Messina.” 6 (12), 1203–1208. [English & French summaries pp. 1207–1208.]

(679a) Girotto reports an infection of *Syngamus trachea* in chickens, guinea-fowls, turkeys and pheasants in Veneto, Italy. In 50 rearing establishments in the area he treated 870 domestic poultry, of which about 1,700 were infected, with barium and potassium antimonyl tartrate. Two methods of treatment were used. A pinch of powder was introduced into each nostril or into the trachea or, alternatively, a spoonful of the powder was scattered in a box and the birds, which had not eaten for at least eight hours, were then put into it; air was forced with bellows for 15–20 seconds through holes on one side of the box and blowing was repeated five or six times at intervals of two minutes; ten minutes later fresh powder was introduced and the process repeated. The rate of cure was 100% in 18 of the establishments and 90% in 13. That only 50% or less were cured in seven establishments is ascribed to the prevalence of other disease. Girotto lists some disinfectant solutions suitable for prophylaxis.

M.MCK.

(679b) This is a review of a paper by Kennedy, on an attempt to produce eosinophilic colitis by infecting cattle with *Trichinella spiralis*, which appeared in *Cornell Vet.*, 45, 12 7–12 52. [For abstract see Helm. Abs., 24, No. 93a.]

M.MCK.

(679c) By the examination of faeces from 64 dogs and autopsies on 90 dogs from the province of Messina in Sicily, helminths were found in 139 of them, viz., *Dipylidium caninum* in 9, *Taenia hydatigena* in 11, *T. pisiformis* in three, *Echinococcus granulosus* in eight, *Diplopygidium acanthoreta* in one, *Mesocestoides lineatus* in one, *Toxocara canis* in 57, *Ancylostoma caninum* in 53, *Spirocerca sanguinolenta* in 21, *Uncinaria stenocephala* in 21, *Trichuris vulpis* in 1 and *Toxascaris leonina* in three.

M.MCK.

## 60—Veterinariya.

- a. GRIGORYAN, G. A., KHANBEKYAN, R. A. & OVANESYAN, A. S., 1955.—[Treatment of fascioliasis in sheep with hexachlorethane and carbon tetrachloride.] 32 (7), 53–56. [In Russian.]
- b. KAZAKOV, B. N. & ZOTOV, V. A., 1955.—[The intramuscular use of carbon tetrachloride in fascioliasis of sheep.] 32 (8), 50–52. [In Russian.]
- c. AKRAMOVSKI, M. N. & ROMANOVA, T. V., 1955.—[Treatment of dictyocauliasis in calves.] 32 (8), 53. [In Russian.]
- d. PRITULIN, P. I., 1955.—[Winter intoxication of horses with phenothiazine.] 32 (10), 40–42. [In Russian.]
- e. NIKOLOVA-DIMITROVA, E. A., 1955.—[The growth of helminthology in Bulgaria.] 32 (10), 86–89. [In Russian.]
- f. SUDACHENKOV, V. V., 1955.—[The causes of epidemic outbreaks of Dictyocaulus infestation in cattle. (In Latvia).] 32 (12), 25–27. [In Russian.]
- g. RIBALTOVSKI, O. V., 1955.—[The use of carbon tetrachloride in Ascaridia infestation of fowls.] 32 (12), 41. [In Russian.]

(680a) To test the toxicity of a combined dose of hexachlorethane and carbon tetrachloride on eight one-year-old sheep the drugs were administered three times (with a daily interval): hexachlorethane in the dose of 0.4 gm. per kg. body-weight was given orally and 2 ml. of carbon tetrachloride was injected into the rumen. During the following two weeks, there were only slight increases of haemoglobin and some reduction of eosinophils which again became normal after seven to eight days. Sheep were also dosed six and more months later being artificially infected with *Fasciola gigantica* to find the effect of combined treatment. Two sheep received only hexachlorethane in a dose of 0.4 gm. per kg., two sheep received only carbon tetrachloride, 2 ml. being introduced into the rumen. A third group of two sheep were given combined treatment with hexachlorethane (0.4 gm. per kg.) and carbon tetrachloride introduced into the rumen (2 ml.). A fourth group received hexachlorethane 2 gm. per kg. and 1 ml. of carbon tetrachloride was introduced into the rumen. In the animals treated with separate drugs eggs ceased to appear, in each separate case, on the 6th, 10th,

13th and 17th day. In those dosed with the combination of drugs the eggs ceased to appear on the 3rd and 4th day after treatment. On post-mortem examination all animals were found free from *Fasciola*. Subsequently six sheep were infected with 15 metacercariae of *Fasciola gigantica* per kg.; 70-72 days later three of these animals were given the combined treatment (0.2 gm. of hexachlorethane per kg. and 1 ml. of carbon tetrachloride by injection into the rumen). At post-mortem, 119-120 days after infection, all were found to be free from *Fasciola gigantica* whereas the animals of a control group died not later than 93 days after infection. C.L.

(68ob) A mixture of equal parts of carbon tetrachloride and vaseline was injected intramuscularly in sheep suffering from fascioliasis. Doses of 3 ml. for adults and 2 ml. for young sheep proved very effective. C.L.

(68oc) In 1951, 232 calves with infections of *Dictyocaulus viviparus* were treated by injections of iodine solution [dose not stated]. The first injection was given after the appearance of larvae in faeces between the 18th and 25th June, and subsequently every 28 days up to the 6th or 7th of September. In the following year 347 calves were treated, starting on the 10th to 11th of June and then every 28 days up to the 2nd to 6th of October. There were no toxic effects and the results were very good. C.R.

(68od) A number of foals were given 20 gm. of phenothiazine mixed with oats in groups feeding during wintry conditions of March: 1.5% to 2% of those treated died. Some horses with exceptional appetites, were taking from 40-60 gm. of phenothiazine. As there were no cases of death during previous treatment in May, Pritulin thinks that the active toxic agent is of alkaloid character and recommends that phenothiazine should not be given during a cold springtime. The results of the clinical and histopathological examinations of dead horses are detailed. C.R.

(68oe) Nikolova-Dimitrova refers to past, present and future developments of helminthology in Bulgaria. Estimating the present state of helminthological investigation in Bulgaria it is obvious that the greatest stress is on its veterinary and biological aspects. Comparatively less is achieved in medical helminthology and practically nil in plant helminthology. C.R.

(68of) High peaks of dictyocauliasis in cattle are due to an insufficiency of winter fodder and to poor pastures. Examinations of slaughtered cattle from an area of Latvia, made over a period of ten years, showed that normally the infection first appeared in June, reached a maximum during August and September and disappeared by December. However in 1953-54, owing to a lack of winter fodder, 23% of young cattle continued to be infected throughout the winter and spring, leading to a high peak of 73% the following August. From this it is concluded that the infection is more widely spread than has been supposed and under good feeding conditions it may be present without giving rise to symptoms. G.I.P.

(68og) In the treatment of ascaridiasis in domestic fowls carbon tetrachloride in capsules (containing 1 gm. each) has an advantage over the liquid form as the drug can be administered without complications by a single person. G.I.P.

#### 681—Veterinarski Glasnik. Belgrade.

- a. NEVENIĆ, V., 1955.—“Invazione bolesti i njihovo suzbijanje.” [Control of helminth parasites.] 9 (1), 36-41.
- b. SIMIĆ, Č., 1955.—[Contribution à la discussion au sujet de la réalisation d'un plan de lutte contre les maladies parasitaires et d'invasion chez l'homme et les animaux domestiques.] 9 (3), 211-214. [In Serbian.]
- c. WINTERHALTER, M., 1955.—“Suzbijanje parasitskih invazija.” [Efforts to control parasitic diseases.] 9 (3), 214-220.
- d. LJESJEVIĆ, Z., 1955.—“Prilog dijagnostici ehinokokoze goveda.” [Contribution to the diagnosis of echinococcosis in cattle.] 9 (7), 444-448.



- e. KENDEREŠKI, S., 1955.—“Trihinoza u Ševaricama kod Šapca.” [Trichinelliasis in Ševarice near Šabac.] 9 (7), 470-474.
- f. JAKŠEVAC, N., 1955.—“Jedan dokumenat iz 1846 god. o lečenju metiljavosti.” [An 1846 document on distomiasis.] 9 (9), 648.
- g. DELIĆ, S., 1955.—“*Coenurus serialis* kod poljskog zeca (*Lepus europaeus*, Pall.).” [*Coenurus serialis* in a hare in Yugoslavia.] 9 (10), 683-685. [German summary p. 685.]
- h. WETZEL, R., 1955.—“Mehanizam djelovanja i primjena anthelmintika.” [The mechanism of effect and application of anthelmintics.] 9 (11), 742-748.
- i. DRAGIĆ, M. & DUKIĆ, R., 1955.—“O vrednosti određivanja jačine invazije crevnih parazita kod pretrage ekskremenata konja flotacionim metodom.” [Examination of horse faeces by the flotation method.] 9 (11), 780-784. [German summary p. 784.]
- j. DELIĆ, S., 1955.—“*Tetrathyridium bailleti* kod lisice (*Canis vulpes*, Linné).” [*T. bailleti* in a fox.] 9 (11), 796-800. [German summary pp. 799-800.]
- k. ROGOŠIĆ, D., 1955.—“Nekoliko podataka o nekim invazionim bolestima u NR Crnoj Gori.” [Some details of parasitic diseases in the People's Republic of Montenegro.] 9 (11), 807-809.

(681a) Nevenić gives reasons for the wide distribution of some of the parasites in Yugoslavia. He outlines the role of veterinary, agricultural and scientific institutes in the control of parasites and points out that, to be successful, propaganda must convince the peasants of the role of the parasites and must begin at the level of the village. According to Nevenić the Department of Parasitic Diseases in Belgrade has planned antiparasitic action in various parts of the country with good results. C.R.

(681b) Simić stresses the importance of parasitic diseases to man and animals. He discusses in detail the approach to control in which doctors and veterinary surgeons must take part, with the help of teachers and farmers. He outlines the usual procedures for the organization of control of echinococcosis and cysticerciasis. C.R.

(681c) Winterhalter discusses the control of parasitic diseases which are of great importance to animal husbandry in Yugoslavia. C.R.

(681d) Lješević reports good results in the diagnosis of hydatid in 109 cattle using as antigen the hydatid fluid obtained from cysts from pigs, placed into 10-20 c.c. ampoules with 2% of chloroform and kept on ice. Under these conditions the antigen could be kept for a year without losing its property. Lješević injected 0.5 c.c. of antigen intradermally and obtained positive reactions after 15-30 minutes in 84.8% and after two hours in 91.11% of the cases. These results were confirmed by post-mortem findings. C.R.

(681e) Kendereški reports an outbreak of trichinelliasis in Ševarice in which two people died. C.R.

(681f) Jakševac refers to a document dated 12th November 1846 in which fascioliasis of sheep is mentioned, describing the conditions under which it appears. At that time there was no effective treatment. C.R.

(681g) Delić reports the first case of *Coenurus serialis* in a hare shot near Kalinovik in Yugoslavia. C.R.

(681h) [This is a translation of a paper which appeared in *Wien. tierärztl. Mschr.*, 1953, 0, 577-584. For abstract see *Helm. Abs.*, 22, No. 703a.]

(681i) Dragić & Dukić examined the faeces of horses by flotation, using concentrated salt solution. Examination four times daily at two-hourly intervals for one to three days showed the egg output to be very variable. In their experience the assessment of infestation according to the number of eggs in 3 gm. of faeces as light (up to 30 eggs), medium (30-70 eggs) and heavy (over 70 eggs) is very misleading and not suitable for the purpose. C.R.

(681j) Delić found the omentum of a fox to be infected with *Tetrathyridium bailleti*. These larvae survived at room temperature for eight days and when some of them were fed to dogs, eggs were produced in the faeces 48 days later; when killed one dog was found to be infected with *Mesocestoides lineatus*. C.R.

(681k) Rogoši  reports the occurrence in Montenegro of hydatid in cattle (50.9%) and in sheep (23%) killed in the period from May to August. During the same period *Cysticercus tenuicollis* was found in 48% of sheep and *C. bovis* in 3.7% of cattle. Distomatosis (*Fasciola* and *Dicrocoelium*) was found in 27.6% of cattle and 48.5% of sheep. *Dictyocaulus filaria* was found in 45% of slaughtered sheep and lambs and *Moniezia* sp. in 65% of sheep. Ascarids were common in both pigs and horses. [The number of animals killed is not given.] C.R.

### 682—Vie et Milieu. Paris.

- a. CHABAUD, A. G., 1955.—“Remarques sur le cycle  volutif des filaires du genre *Diplotriaeana* et redescription de *D. monticelliana* (Stossich 1890).” 6 (3), 342-347.
- b. GERLACH, S. A., 1955.—“Neue Nematoden aus dem K stengrundwasser des Golfes de Gascogne (Biskaya).” 6 (3), 426-434.

(682a) Chabaud redescribes and illustrates *Diplotriaeana monticelliana* from the air sacs of *Sylvia atricapilla*. He considers the material identified as this species by Boulenger in 1928 to be distinct and renames it *D. boulengeri* nom.nov. The life-cycle of this genus is very different from that of other filiariids. In *D. monticelliana* the eggs are passed into the trachea, through the gut and out with the faecal material. This indicates that the intermediate host is a coprophagous insect or insect larva. Attempts to infect a number of such insects and isopods were unsuccessful and although the eggs hatched in the intestine of *Calliphora* larvae no further development took place. S.W.

(682b) Gerlach describes five new species of free-living marine nematodes from the coast of Gascony, France, viz., *Epacanthion flagellicauda* n.sp., *Metachromadora quadribulba* n.sp., *Sigmophora monstrosum* n.sp. and *Ceramonema salsicum* n.sp. The fifth species, which was erroneously named *Chaetonema oxystomoides* nom.nud. by Deboutteville, Gerlach & Siewing, in a paper published in *Vie et Milieu*, 1954, 5, 373-407, is tentatively placed in *Fenestrolaimus* as *F. vestitus* n.sp. The name *Kraspedonema* Gerlach, 1953 is now replaced by *Craspedonema* nom.nov. to avoid confusion with *Craspedonema* Richters, 1908. M.MCK.

### 683—Virginia Journal of Science.

- †a. MANZELLI, M. A., 1955.—“Progress report on the use of V-C 13 for the control of nematodes infesting turf grasses.” 6 (4), 231-232.
- †b. MILLER, L. I., 1955.—“Control of the sting nematode on peanuts with an ethylene dibromide-vermiculite mixture.” 6 (4), 235.
- †c. HAROWITZ, C. L., 1955.—“Synthesis and chemistry of o-2,4-dichlorophenyl o,o-diethyl phosphorothioate (‘V-C 13 Nemacide’) and its analogs.” 6 (4), 262.
- †d. BOYD, G. R., 1955.—“The determination of residues of o-2,4-dichlorophenyl-o,o-diethyl phosphorothioate (‘V-C 13 Nemacide’).” 6 (4), 262.

(683a) A 75% emulsifiable concentrate of o-2,4-dichlorophenyl-o,o-diethyl phosphorothioate (V-C 13) applied at the rates of 125, 250 and 500 lb. per acre was effective in controlling eelworms infesting turf grasses, viz., St. Augustine, annual rye, colonial bent, native Bermuda and the improved strains of Bermuda, Gene Tift and Everglades No. 1. R.T.L.

(683b) Ethylene dibromide absorbed in vermiculite was effective in controlling the sting nematode and correcting plant disorder when applied at a depth of five inches in a furrow along the drill row at 0.5 lb. per 100 feet of linear row and at the rates of 21, 31 and 42 lb. of ethylene dibromide per acre. The lowest rate gave a 900 lb. increase in yield of nuts and the highest net return. R.T.L.

† Abstract of paper presented at the 33rd Annual Meeting of the Virginia Academy of Science, Harrisonburg, Va., May 11-14, 1955.



**684—West African Medical Journal.**

- a. CHARTRES, J. C., 1955.—“Onchocerciasis: incubation period, clinical course, and treatment at first hand.” 4 (3), 130-135.
- b. ROMANOWSKI, V., 1955.—“Bilharzial ulcer of the bladder: report of a case.” 4 (4), 206-207.

(684a) The author and his wife were repeatedly bitten by *Simulium damnosum* during delays at the Maniya River Ferry when proceeding by car to the French Cameroons, from Makurdi in Nigeria, and on their return three weeks later. The first symptoms of onchocerciasis appeared in the form of papular rashes 15 and 18 months later. Details are given of the clinical effects of banocide and antropol treatments. It is evident that antropol produced a radical cure by killing the adult worms, for the subsequent two-and-a-half years were free from symptoms and the eosinophilia gradually diminished.

R.T.L.

**685—West Indian Medical Journal.**

- a. STAFFORD, J. L., HILL, K. R. & DE MONTAIGNE, E. L., 1955.—“Microfilariasis in the Turks Islands. Report of two cases.” 4 (3), 183-187.

(685a) Heretofore, no cases of filariasis in Jamaica or its dependencies have been reported. Two individuals from the Turks Islands under treatment for chronic tubercloid leprosy were found to have microfilariae in their blood. There was an eosinophilia of 20% in one and 10% in the other but neither had any symptoms of filariasis. Details of measurements of the microfilaria are tabulated. A photomicrograph shows that the embryo has a sharply pointed tail. Apart from the presence of nuclei almost to the tip of the tail they resemble *Microfilaria ozzardi*.

R.T.L.

**686—Wiener Tierärztliche Monatsschrift.**

- a. BÖHM, L. K., 1955.—“Über die in Österreich verbreitete Ancylostomosis der Katzen und ihren Erreger, den spezifischen Katzen-Hakenwurm *Ancylostoma tubaeforme* (Zeder, 1800).” 42 (12), 760-763. [English, French & Italian summaries p. 763.]

(686a) Böhm reports that *Ancylostoma tubaeforme* infection is wide-spread among cats in rural Austria but occurs less frequently in town cats. On farms where the infection was known to be present in cats faecal examination of dogs has failed to reveal any *A. tubaeforme*. Böhm describes the symptoms and pathology of the disease and illustrates the identification of *A. tubaeforme* ova by means of line drawings.

A.E.F.

**687—World Health Organization. Technical Report Series.**

- a. ANON., 1955.—“Joint FAO/WHO Expert Committee on Meat Hygiene.” No. 99, 52 pp.

(687a) “A corner-stone in hydatidosis control programmes is the strict exclusion of all dogs from abattoir premises and the careful destruction, preferably by incineration or sterilization and not by burying, of all organs with hydatid cysts. These measures should be enforced in all abattoirs and particularly in the small rural abattoirs of countries where hydatidosis is endemic.” Dependable and practicable tests are not yet available to detect trichina infection in live swine but trichinoscope examinations can serve a useful purpose in countries having a high enzootic level of trichinosis in swine. Persistent propaganda should be carried out for the adequate cooking of pork in the home. The adequate heating of all garbage before it is fed to swine is also an important factor in control. Pork products likely to be consumed in a raw state can be sterilized by heat or cold.

R.T.L.

## 688—Zashtita Bilja. Belgrade.

- a. KLINDIĆ, O., 1955.—“Korjenova nematoda (*Heterodera marioni* Cornu) i problem propadanja paprike područja Trebižata.” [*Heterodera marioni* and wilt in pepper in the Trebižata region.] No. 32, pp. 31-42. [English summary pp. 41-42.]

(688a) *Heterodera marioni* is the main cause of the wilting in pepper plants in the Trebižat region of Yugoslavia. Fumigation with D-D gave satisfactory results in a one-year experiment and the research is being continued. *Cucumis melo*, *Cucurbita pepo*, *Gossypium herbaceum* and *Ficus carica* are added to the list of crops affected by the root-knot nematode in Hercegovina, previously published in *Zashtita Bilja, Belgrade*, No. 18. G.I.P.

## 689—Zeitschrift für Angewandte Zoologie.

- a. HAAKH, U., 1955.—“Ein Beitrag zur Morphologie der Weibchen von *Trichostrongylus colubriformis* (Giles 1892) und *Trichostrongylus vitrinus* Looss, 1905. (Nematoda: Trichostrongylinae).” Year 1955, No. 2, pp. 139-150.
- b. HAAKH, U., 1955.—“Morphologische Unterschiede bei *Trichostrongylus retortaeformis* (Zeder, 1800) (Nematoda: Trichostrongylinae) aus verschiedenen Wirtstieren (Hase, *Lepus europaeus* und Kaninchen, *Oryctolagus cuniculus*).” Year 1955, No. 2, pp. 151-157.
- c. HAAKH, U., 1955.—“*Ostertagia böhmi* Gebauer, 1932 (Nematoda: Trichostrongylinae) aus dem Reh (*Capreolus capreolus* L.). Ein Beitrag zur Morphologie mit einer Beschreibung der Weibchen.” Year 1955, No. 2, pp. 159-164.
- d. SPREHN, C., 1955.—“Trematoden in deutschen Farmnieren (*Lutreola vison* Schreb.) mit einem Bestimmungsschlüssel der Parasiten.” Year 1955, No. 4, pp. 411-422.
- e. JUNG, T., 1955.—“Zur Frage der Verbreitung der medizinisch-pharmazeutisch nutzbaren Hirudineen in Niedersachsen.” Year 1955, No. 4, pp. 457-460.

(689a) Although the females of *Trichostrongylus colubriformis* and *T. vitrinus*, from the goat, are very similar, differences were detected in the tail. In *T. colubriformis* the narrowing of the tail is sudden, beginning at a point some distance from the anus and continuing a third of the way along the tail. Thereafter the tail narrows gently to a point in line with the main axis of the body. The bulge behind the anus is small. In *T. vitrinus* the narrowing of the tail is gradual and begins much farther forward, continuing smoothly, apart from the large anal bulge, to the tip of the tail which lies on a line somewhat dorsal to the main axis of the body. In doubtful cases the length of the tail is of help. It measures 60.0-130.3  $\mu$  in *T. colubriformis* and 83.3-133.3  $\mu$  in *T. vitrinus*. If the eggs are shorter than 85  $\mu$  the species involved is *T. colubriformis*, and if longer than 100  $\mu$ , it is *T. vitrinus*. Less than 1% of the females were unidentifiable when these diagnostic characters were considered together. Body measurements and the egg sizes of the two species are tabulated and succinctly compared by graphs. M.MCK.

(689b) Haakh observed that specimens of *Trichostrongylus retortaeformis* from the hare, *Lepus europaeus*, differed from those which he examined from the rabbit, *Oryctolagus cuniculus*. Differences were very clear in the males. In those from the hare the right spicule was bent from its middle to the level of the narrower portion or “neck”. This “neck” was somewhat wider than long. The left spicule was bent only at the middle, the “neck” being long, ill defined and straight. A stricture which formed the narrowest part of the neck was recognizable on the right spicule but not on the left one. In *T. retortaeformis* from the rabbit the right spicule was bent only at the beginning of the “neck” portion and the left one was sometimes bent, and if so, only slightly and at the mid-point. In both spicules the “neck” was as long as it was wide and the narrow stricture was distinct. The width of the anterior third of the worms could be used to distinguish the females: those from the hare were 40  $\mu$  to 60  $\mu$  wide at the level of the end of the oesophagus and those from the rabbit were 30.0  $\mu$  to 43.3  $\mu$  wide. Other characters and measurable features of the worms are compared in detail. M.MCK.

(689c) The female of *Ostertagia böhmi* is now described from the roe-deer *Capreolus capreolus* but appears to be indistinguishable from some other species of *Ostertagia*. It is 6,846  $\mu$  to 8,400  $\mu$  long and the anus lies 163.3-190.0  $\mu$  from the tail tip. A few females having tails 200.0-213  $\mu$  long may also have been *O. böhmi*. The vulva is either beak-shaped in side



view or overhung by a more or less swollen flap of cuticle. In the males which were found, the oesophagus was longer than in those originally defined although the body was shorter. To complete Gebauer's original description the structure of the bursa is given in detail. The ventro-ventral ray is almost straight. The latero-ventral diverges from it but presently bends sharply towards it so that the tips almost touch. The medio-lateral, the longest of the rays, runs close to and parallel to the externo-lateral. The postero-lateral is separate from the rest and tapers to the tip. The thick and short externo-dorsal ray has at its tip a slender appendage  $16.6\mu$  long, pointing medially and posteriorly. The stem of the dorsal ray is only  $20\mu$  long. Its branches are slightly longer and diverge at an angle of about  $40^\circ$ , each presenting at its tip two or perhaps three branches of which the lateral one is bent medially. M.MCK.

(689d) Sprehn has observed lethal infections of *Tocotrema lingua* and *Apophallus muehlingi* in *Lutreola vison* on mink farms in northern Germany. He redescribes these worms and lists their known definitive and intermediate hosts. Other trematodes observed from mink farms in Germany and which are described, or noted with illustrations and comments, are *Nanophyetus salmincola*, *Euryhelms squamula*, *Trogloitrema acutum*, *Paragonimus kellicotti*, *Euparyphium melis* and *Alaria freundi*. *P. kellicotti* and *A. freundi* are not endemic in Germany. A key is given to the eight species. M.MCK.

(689e) A systematic survey of Lower Saxony, in Germany, for medicinal leeches revealed two more places where *Hirudo medicinalis* is to be found, viz., a system of ditches in Luzie in the district of Dannenberg and ditches in Meerdorfer Holz in the district of Peine. Other habitats just north of Lower Saxony are reported from Dorfteich and Kulpin in the district of Herzogtum Lauenburg and Teiche and Kolke near Ratzeburg. *Piscicola geometra* could be found in nearly all the natural waters inhabited by fish. *Cystobranchus respirans*, which is very similar to *P. geometra* but is not used medicinally, was detected for the first time at or near Ringelheim. M.MCK.

#### 690—Zeitschrift für Landwirtschaftliches Versuchs- und Untersuchungswesen. Berlin.

- a. KIRCHNER, H. A., 1955.—“Ein Arbeitstisch zur serienmässigen Untersuchung von Bodenproben auf den Besatz mit Kartoffelnematodenzysten.” 1 (1), 95–100.

(690a) This is a detailed description, with plans, of a work-table designed for the speedy examination of soil samples for the presence of cysts of *Heterodera rostochiensis*. The work is done by two people and the cysts are floated in water from air-dried soil in a special funnel with a rough inner surface and a bent stem. The cysts remain on the funnel wall where they are counted and examined. M.T.F.

#### 691—Zeitschrift für Parasitenkunde.

- a. BÖHM, L. K. & SUPPERER, R., 1955.—“Untersuchungen über Setarien (Nematoda) bei heimischen Wiederkäuern und deren Beziehung zur ‘epizootischen cerebrospinalen Nematodiasis’ (Setariosis).” 17 (3), 165–174.
- b. BRUNNACKER-DAUR, M., 1955.—“Die Einwirkungen von Trematoden auf Wasserschnecken. Ein Beitrag zum Wirt-Parasit-Verhältnis.” 17 (3), 193–216.

(691a) Böhm & Supperer have studied specimens of *Setaria* recovered from ruminants in Austria. They report that the species found in roe-deer is *S. tundra*. Female specimens, from both cattle and red-deer, show transitional stages between *S. cervi* and *S. digitata*. Since the characteristics ascribed to the latter species were found to be either inaccurate or non-specific the authors conclude that *S. digitata* is a synonym of *S. cervi*. They consider that the disease entity “epizootic cerebrospinal nematodiasis” should be used only for this infection caused by migrating larvae in abnormal hosts; the disease in the usual hosts has a quite different pathogenesis. A.E.F.

(691b) Brunnacker-Daur has studied the effect of trematode infections on their snail hosts, with special reference to *Limnaea stagnalis*. She finds that specimens of *L. stagnalis* which become infected at an early stage show an increase in size as compared with uninfected snails. The ratio length:breadth is less in infected snails, while total weight is greater. When infection occurs late, there is little difference between infected and uninfected specimens. Similar results were obtained from studies on *Stagnicola palustris*, *Radix ovata*, *Physa fontinalis*, *Planorbis corneus*, *Tropidiscus carinatus* and *Bithynia tentaculata*. A.E.F.

## 692—Zoologicheskii Zhurnal.

- a. MOLEV, E. V., 1955.—[On the question of the presence of foci of clinical onchocerciasis of horses and their connection with *Culicoides*.] 34 (4), 760–769. [In Russian.]
- b. POLOZHENTSEV, P. A., 1955.—[A contribution to the fauna of Mermithidae (Enoplida: Dorylaimata) of the U.S.S.R.] 34 (4), 770–774. [In Russian.]
- c. MICHAJLOW, W., 1955.—[On some problems of the interrelationship between the first intermediate host and the larvae of cestodes.] 34 (5), 986–991. [In Russian.]
- d. STEFANSKI, W., 1955.—[The biocoenotic relationship between the parasite fauna and the bacterial flora of the digestive tract.] 34 (5), 992–999. [In Russian.]
- e. MASHIROV, E. T., 1955.—[Trichinelliasis of wild animals in the Tartar A.S.S.R.] 34 (5), 1008–1011. [In Russian.]
- f. SPASSKI, A. A., 1955.—[On the independent formation of the character of a net-like uterus in representatives of different groups of hymenolepidids (Cestoda).] 34 (5), 1012–1018. [In Russian.]
- g. MARKOV, G. S. & ROGOZA, M. L., 1955.—[Annual differences in the parasitic fauna of the grass frog (*Rana temporaria* L.).] 34 (6), 1203–1209. [In Russian.]

(692a) One permanent and two occasional foci of equine onchocerciasis were found in the Moscow region; in the Ivanov region horses in eight districts and two towns were infected. The 14 species of *Culicoides* attacking horses in these two regions include the vectors *C. nubeculosus*, *C. obsoletus*, *C. stigma* and *C. pulicaris*. Transmissible foci were low-lying damp pastures adjoining marshes or forests. Two upsurges of infection were recognizable, the stronger one during May–August and the weaker one during December–February. The highest infections were found in horses five to ten years old; foals were not affected. G.I.P.

(692b) The 39 species of mermithids (belonging to 17 genera) known in Russia are listed with notes on their occurrence there. Insect hosts for six of the 21 aquatic species and ten of the 18 soil-dwelling species are named. G.I.P.

(692c) Michajlow divides the possible copepod intermediaries of *Triaenophorus lucii* into five groups, viz., those in which (i) all the oncospheres die in the intestine, e.g. in *Cyclops viridis*, *Diaptomus amblyodon* and *D. castor*; (ii) a proportion of the oncospheres dies but those passing into the body-cavity do not develop, e.g. in *C. leuckarti* and *C. oithonoides*; (iii) most of the oncospheres pass into the body-cavity but generally do not give rise to procercooids, e.g. in *C. serrulatus*; (iv) a proportion of the oncospheres dies but all those surviving develop normally, e.g. in *C. fuscus*, *C. albidus*, *C. vernalis*, *C. bicuspidatus* and *D. gracilis*; and (v) most of the oncospheres survive and develop, e.g. in *C. strenuus* and *C. vicinus*. Only the copepods in (iv) and (v) are true hosts of *T. lucii*. Those in (v) represent the chief intermediaries and in (iv) the secondary intermediaries. The author suggests that similar investigations should be made for other cestodes and goes on to discuss host-parasite relationships. G.I.P.

(692e) Ten per cent of 328 carnivorous fur-bearing animals from the Tartar Republic, were infected with *Trichinella*, viz., 23 of 187 foxes, 4 of 101 minks, 3 of 15 martens, 1 of 13 raccoons, 1 of 13 polecats and 1 of 7 ermines. Infection took place between May and November. In the muscles of one fox there was one *Trichinella* in an incomplete spiral and without a capsule for each of three to four calcified cysts, proving the existence of a secondary infection. The foci of trichinelliasis among wild animals may be a source of infection to domestic animals particularly pigs, dogs and cats. G.I.P.



(692f) From *Anas querquedula* in the Rybinsk reservoir, Spasski describes a hymenolepidid worm with a net-like uterus extending laterally beyond the excretory ducts and altering the anatomy of the posterior section of the strobila. The anterior section remains similar in anatomy to *Sphenacanthus fasciculata*. The specimen was found to be identical with *Hymenolepis giranensis* Sugimoto, 1934, although it has slightly smaller hooks (0.036 mm. in length). Consequently *H. giranensis* is transferred to *Sphenacanthus* and placed in *Retinometra* n.subg. as a new combination. Among hymenolepidids a net-like uterus occurs also in *Fimbriaria* and *Hymenolepis* (as defined by Spasski in 1950 and 1954) and has arisen independently in these three groups from a uterus in the shape of a transverse tube. G.I.P.

(692g) In 1935, the spring-summer period near Leningrad was late, cool and rainy with a relative humidity of 67% in May and in 1936 it was warm and early with a relative humidity of 80% in May. Consequently in 1936 two to four times as many *Rana temporaria* are infected by helminths (except *Tetracotyle crystallina* and *Polystoma integerrimum*) than in 1935 and intensities were three times higher. The highest trematode and nematode infections occurred during August in 1935 and June-July in 1936 when a dry June was followed by a decrease in infections. G.I.P.

### 3—Zoologische Jahrbücher. Abteilung für Systematik, Ökologie und Geographie der Tiere.

a. ALLGÉN, C. A., 1955.—“Zur Biologie und Ökologie freilebender mariner Nematoden.” 83 (6), 485–502.

(693a) Allgén collates from his observations and from the literature different aspects of the biology of free-living marine nematodes. He reviews records of the findings of nematodes associated with hydroids, oysters, bryozoans, sponges and Suctorina; mentions eight species known to be viviparous; cites examples of intersexes and wound repair and gives many instances of the finding of portions of nematodes inside other nematodes (which have, in some cases, been of the same species). Bipolarity is not apparent in the sense that like species occupy Arctic and Antarctic waters only. That like species do however occupy sub-Arctic and sub-Antarctic waters is illustrated by examples. M.MCK.

### 4—Zoologischer Anzeiger.

- a. MEYL, A. H., 1955.—“Nematoden aus dem Psammon des Tanganyika-Sees.” 155 (5/6), 135–138.
- b. GLEISS, H. G. W., 1955.—“Der Knäuelwurm *Hexameris cornuta* nov.spec. (Mermith., Nemat.) als Endoparasit des Kartoffelkäfers (*Leptinotarsa decemlineata* Say).” 155 (5/6), 139–143.
- c. HÖRNING, B. & ROSENFELD, V., 1955.—“Über einen Trematodenfund aus der Familie der Diplostomidae beim Mäusebussard (*Buteo buteo* L.).” 155 (7/8), 207–210.
- d. OSCHKE, G., 1955.—“Über die Vergesellschaftung von Nematoden und Crustaceen, mit einer Beschreibung von *Matthesonema tylosa* n.g., n.sp. (Nematoda) aus dem Kiemenraum einer Assel.” 155 (9/10), 253–262.
- e. ALLGÉN, C. A., 1955.—“Über eine weitere neue Südsee-Desmoscolecide, *Desmoscolex parafalklandiae* n.sp. von den Falkland-Inseln.” 155 (11/12), 317–318.

(694a) In an account of four species of free-living eelworms from the sand of Lake Tanganyika, Meyl describes *Actinolaimus chappiusi* n.sp. and gives brief notes on a female specific with the worms identified as *Mononchus dadayi* by Schneider in 1935 and now named *Iotonchus schneideri* nom.nov. M.MCK.

(694b) Gleiss publishes a description, made for him by F. Paesler, of *Hexameris cornuta* n.sp. (of which its last larval stage only was found) from larvae and imagines of the Colorado beetle *Leptinotarsa decemlineata* in Germany. Six mammilliform lips surround the unarmed mouth. The cuticle is divided into smooth longitudinal bands each composed

of fine longitudinal striations. The tail is rounded and has a cuticular thorn-like appendage (0.042 mm. long) which, it is suggested, disappears during development to the adult stage in the ground. One *Hexameris* larva was observed to leave the host through the soft area surrounding the base of the antenna. M.MCK.

(694c) This brief description of *Neodiplostomum attenuatum* from a buzzard *Buteo buteo*, from Germany, is illustrated by a photomicrograph with an explanatory diagram of the worm. The four species of *Neodiplostomum* known in the buzzard are listed. M.MCK.

(694d) Discussing the reports of nematodes associated with crustaceans, Osche lists six species found in the gill chamber of crustaceans and adds *Matthesonema tylosa* n.g., n.sp. from *Tylos latreillii* from Istria in the Mediterranean. This is apparently the first nematode to be described from a coastal isopod. As a phasmidian it is unusual in occupying a marine habitat. It presents the buccal cavity, oesophagus and spicule structure of *Rhabditis*, the male tail is comparable with that of *Cheilobus* and *Brevibucca* and the arrangement of oral setae is similar to that of *Chambersiella*. The presence of this new rhabditid in a littoral isopod is taken as an indication that the host species has been derived from terrestrial stock. *Monhystera cambari* is transferred to *Gammarinema* as *G. cambari* n.comb. M.MCK.

(694e) To his list of Desmoscolecidae collected by the Swedish South Polar Expedition [see Helm. Abs., 21, No. 868a] Allgén adds, from the Falkland Islands, *Desmoscolex parafalklandiae* n.sp. It has 16 body rings whereas in *D. falklandiae* there are 18. R.T.L.

## NON-PERIODICAL LITERATURE

695—BAER, J. & FAIN, A., 1955.—“Cestodes.” Exploration du Parc National de l'Upemba. Mission G. F. de Witte (1946-49). Brussels, Fasc. 36, 38 pp.

This monograph on a collection of cestodes from the National Park of Upemba supplements Mahon's (1954) list of species recorded from the Belgian Congo. Each of the forty two species are listed under their hosts and briefly annotated. Five are new species and 19 are reported from this region for the first time. The new host records for the Belgian Congo are *Ophiotaenia theileri* in *Bitis arietans* and *Causus rhombeatus*; *Latiporus* sp. in *Areola ralloides*; *Octopetalum gutterae* and *Porogynia paronai* in *Numida meleagris marungensis*; *Chapmania macrocephala* and *Schistometra conoideis* in *Lissotis m. melanogaster*; *Hymenolepis octacantha* in *Plectropterus g. gambensis*; *Diploposthe laevis* in *Anas erythrorhynchos*; *Paromia africana* in *Bycanistes buccinator*; *Chapmania pinguis* and *Idiogenes bucorvi* in *Bucorvus leadbeateri*; *Paruterina southwelli* in *Tockus alboterminatus stegmanni*; *Dioecocestus* sp. in *Poliocephalus ruficollis capensis*; *Anomotaenia rustica* in *Hirundo r. rustica*; *Moniezia benedini* in *Redunca arundinum* and *Adenota vardoni*. The new species are (1) *Cittotaenia wittei* n.sp. in *Lepus crawshayi* is characterized by its very strongly lobed uterus and its markedly glandular vagina. (2) *Pseudandrya straeleni* n.sp. from *Tatera* sp. differs mainly from *P. monardi* in the shape and dimensions of the hooks (23-24  $\mu$ ), the size of the cirrus pouch (250-325  $\mu \times$  70-90  $\mu$ ) and of the external seminal vesicle (60-80  $\mu$ ). It is doubtful if the rodent *Tatera* sp. is the normal host as *P. monardi* lives in a small carnivore. (3) *Raillietina (Raillietina) mahonae* n.sp. differs principally in having a very muscular and thick walled cirrus pouch (110-130  $\mu \times$  70-90  $\mu$ ) but is probably identical with *R. (R.) gracilis* of Southwell & Lake, 1939 *nec* Janicki, 1904 discovered by Schwetz in *Thryonomys swinderianus* at Kwango, Belgian Congo. (4) *Raillietina (Raillietina) congolensis* n.sp. from *Pytilia afra afra* is a small species measuring about 40 mm. long. There are 100 to 130 hooks on the rostellum, the testes number 14 to 18, there are five to seven eggs in each of the 80 to 100 uterine capsules and the cirrus



pouch is  $70-90\mu \times 35-40\mu$ . (5) *Taenia lycaontis* n.sp. from *Lycaon pictus* is similar to, but smaller than, *T. hydatigena* which has not been found in the Belgian Congo. The tapeworm recorded by Joyeux & Mathias, 1926 in *Lycaon* in East Africa is identical with this new species which, unlike *T. hydatigena*, has a large vaginal sphincter. The spargana which have been reported from man, the serval and the okapi in Central Africa, have been erroneously identified as *Diphyllbothrium mansonii* (erinacei) or *D. decipiens* which are unknown in these regions. As *D. theileri* in the serval and *D. pretoriensis* in the lycaon both occur in South Africa, it seems reasonable to suppose that the spargana found in Central Africa belong to one or other of these two species.

R.T.L.

696—\*BENBROOK, E. A. & SLOSS, M. W., 1955.—“Veterinary clinical parasitology.” Ames, Iowa: State College Press, 2nd edit., 206 pp.

697—\*BRUNS, A., 1955.—“Untersuchungen über das Vorkommen von Magen-Darmparasiten und Lungenwürmern bei Ziegen im raume Butzbach in Oberhessen.” Dissertation, Giessen, 78 pp.

698—\*CAMP, H., 1955.—“Verbreitung parasitärer Tierkrankheiten im Kreise Jülich.” Dissertation, Giessen, 27 pp.

699—CONFERENCE ON PARASITES AND PARASITIC DISEASES OF DOMESTIC RUMINANTS, Logan, Utah, August 30–31, 1955. Report, 26 pp.

- a. MARQUARDT, W. C. & SINGER, C. M., 1955.—“Bionomics of *Nematodirus spathiger*.” [Abstract.] p. 13.
- b. DOUGLAS, J. R., BAKER, N. F. & LONGHURST, W. M., 1955.—“The relationship between particle size and anthelmintic efficiency of phenothiazine.” [Abstract.] pp. 14–15.
- c. SHUMARD, R. F. & EVELETH, D. F., 1955.—“Changes in feed and water consumption, water content and pH of feces, certain blood constituents, weight, and digestibility coefficients of protein, crude fiber and phosphorus of lambs infected with *Trichostrongylus colubriformis*, *Haemonchus contortus* and *Nematodirus spathiger*.” [Abstract.] pp. 15–16.
- d. HARSHFIELD, G. S., 1955.—“Observations on parasitism in sheep in northwestern South Dakota.” [Abstract.] p. 16.
- e. SEGNETTI, L., 1955.—“Elaeophoriosis in sheep.” [Abstract.] p. 17.
- f. KELLEY, G. W., 1955.—“A summary of work in progress on ruminant parasitism at the University of Nebraska.” [Abstract.] pp. 17–19.
- g. ALLEN, R. W., 1955.—“Studies on the life history of the fringed tapeworm, *Thysanosoma actinioides*.” [Abstract.] pp. 19–20.
- h. BECKLUND, W. W. & GILMORE, R. E., 1955.—“Observations on the survival of larvae of *Haemonchus contortus* on irrigated alfalfa pasture in southern New Mexico.” [Abstract.] pp. 20–21.
- i. BLACKWELL, R. L. & ALLEN, R. W., 1955.—“Effect of phenothiazine on the conception rate of sheep.” [Abstract.] p. 21.
- j. BECKLUND, W. W. & ALLEN, R. W., 1955.—“Incidence and intensity studies of worm parasites of cattle in the southwest.” [Abstract.] p. 22.
- k. TURNER, J. H., 1955.—“Progress report on experimental strongyloidiasis in lambs and kids.” [Abstract.] pp. 23–24.
- l. KATES, K. C. & WILSON, G. I., 1955.—“Effect of two rations, differing primarily in protein, carbohydrate and crude fiber content, on experimental haemonchosis in lambs.” [Abstract.] pp. 24–25.
- m. RUBIN, R. & WEBER, T. B., 1955.—“Immunity to cattle lungworm, *Dictyocaulus viviparus*.” [Abstract.] pp. 25–26.
- n. GOLDBERG, A. & RUBIN, R., 1955.—“Overwinter survival of larvae of roundworms of cattle on pasture.” [Abstract.] p. 26.

700—\*DEY, N. C., 1955.—“Medical parasitology.” Calcutta: U.N. Dhur & Sons Ltd. (Distributors), 166 pp.

- 701—EUROPEAN & MEDITERRANEAN PLANT PROTECTION ORGANIZATION, 1955.—  
 “*Heterodera rostochiensis* Woll. Potato root eelworm in Europe in 1954.” Paris: European  
 & Mediterranean Plant Protection Organization, 8 pp. [Also in French.]

A survey of the incidence of potato-root eelworm in Europe is given together with details  
 of methods of detection and control in the various countries. H.R.W.

- 702—EUROPEAN & MEDITERRANEAN PLANT PROTECTION ORGANIZATION, 1955.—  
 “*Heterodera rostochiensis* Woll. Report of the International Conference on Potato Root Eelworm  
 (Wageningen, July 6, 1955).” Paris: European & Mediterranean Plant Protection Organization,  
 19 pp. [Also in French.]

An assessment of the importance of potato-root eelworms as a pest is given. Methods for  
 detection, control and prevention of spread of the eelworm are suggested together with a  
 report on progress of research. Appendix 1 of the report deals with methods of soil sampling  
 for potato-root eelworm employed in the United Kingdom and Holland. Appendix 2 gives a  
 suggested code of standardized terms for describing the intensity of infestation with potato-  
 root eelworm. H.R.W.

- 703—\*FRAGA DE AZEVEDO, J. & MEDEIROS, L. DO C. M. DE, 1955.—“Os moluscos de água  
 doce do Ultramar Português. I. Introdução. Generalidades.” Lisbon: Junta das Missões  
 Geográficas e de Investigações do Ultramar, 95 pp.

- 704—\*HIERONYMI, E., 1955.—“Schmid. Die Parasitären Krankheiten der Haustiere. Diagnose  
 und Bekämpfung.” Berlin & Hamburg: Paul Parey, 6th revised edit., viii + 229 pp.

- 705—MANTER, H. W., 1955.—“Two new monogenetic trematodes from elephant fishes (*Callorhyn-  
 chus*) from South Africa and New Zealand.” In: “Essays in the Natural Sciences in Honor of  
 Captain Allan Hancock on the occasion of his birthday, July 26, 1955.” Los Angeles: University  
 of California Press, pp. 211-220.

*Callorhynchicola multitesticulatus* n.sp., from the gill chamber of the elephant fishes  
*Callorhynchus capensis* from South Africa and *C. milii* from New Zealand, is very similar to  
*Callorhynchicola branchialis* but has 125 testes. The eggs are smaller, the uterine branches are  
 more distinct, the vitellaria do not pass behind the testes, the oral sucker is more distinct and the  
 haptor clamps have a more muscular bowl. *Squalonchocotyle callorhynchi* n.sp., from the same  
 hosts and localities, unlike most species of this genus lacks a seminal vesicle. Its most closely  
 related species is *S. canis* from which it differs in lacking a seminal receptacle. The spindle-  
 shaped eggs measure 0.148 to 0.203 mm. R.T.L.

- 706—\*MARHOLDT, D., 1955.—“Differentialdiagnose der im Dickdarm der Schafe schmarotzenden  
 Nematoden *Chabertia ovina* und *Oesophagostomum venulosum* bei der klinischen Kotunter-  
 suchung.” Dissertation, Giessen, 52 pp.

- 707—\*QUEISSER, H., 1955.—“Über das Vorkommen von Larven von *Strongylus edentatus* unter  
 dem Bauchfell von Schlachtpferden und deren Bedeutung für die Fleischuntersuchung.”  
 Dissertation, Giessen.

- 708—\*RAFFALT, J., 1955.—“Die parasitären Krankheiten unserer Haustiere im Landkreis Neu-  
 Ulm/Donau.” Dissertation, Munich, 65 pp.

- 709—\*SCHRÖTTLE, H., 1955.—“Über die Haltbarkeit von Wurmeiern und Wurmlarven im  
 Dünger.” Dissertation, Munich, 36 pp.



710—SKRYABIN, K. I., 1955.—[Trematodes of animals and man. Principles of trematodology. Volume X.] Moscow: Izdatelstvo Akademii Nauk SSSR, 653 pp. [In Russian.]

In the first section of this volume Skryabin revises (a) the Megasolenidae and (b) the Oncocephalidae which he places in the new suborder Pronocephalata Skryabin, 1955 (synonym Potocotylata). The remaining families of this suborder have already been dealt with in volume III and to one of them, the Notocotylidae, Skryabin now adds *Parapronocephalum*. In the subfamily of Pronocephalinae, which already contains 13 genera, *Ruicephalus* Skryabin, 1955 [n.g.] is erected for *Pronocephalus minutus*. In the second section, by Morozov, Heterophyata Morozov, 1955 [n.subordo] includes three superfamilies (i) Heterophyoidea containing Heterophyidae, Galactosomatidae, Acanthostomatidae and Cryptogonimidae; (ii) Opisthorchioidea containing Opisthorchidae, Pachytrematidae and Ratzidae and (iii) Microphalloidea Morozov, 1955 [n.superf.] containing Microphallidae and Gymnophallidae Morozov, 1955 [n.fam.] raised from subfamily rank. In this section Morozov revises only the Gymnophallidae and the Acanthostomatidae. In the latter family he makes *Gymmatrema* [n.g.] for *Acanthostomus gymmarchi* and the new combinations *Atrophecoecum diploporum* (Stunkard, 1931) and *A. minimum* (Stunkard, 1938). In the third section, Skryabin and Gushanskaya revise six families of Hemiurata within a new order Hemiurida Skryabin & Gushanskaya, 1955, viz., (1) Lecithochiriidae, (2) Elytrophallidae, (3) Lampritremitidae, (4) Bathycotylidae, (5) Haploplanchnidae and (6) Isoparaorchidae. The first three families were named in volume X and are now diagnosed. The hemiurid families are classified on the basis of the structure of the terminal elements of the genitalia in correlation with the structure of the vitellaria. (1) Lecithochiriidae comprises the re-established Lecithochiriinae (of which Sterrhurinae is made a synonym) which has a hermaphrodite bursa, and the Brachyphallinae Skryabin & Gushanskaya, 1955 [n.subf.] which lacks a hermaphrodite bursa. The Lecithochiriinae are divided into three new tribes, (a) Lecithochirina with a prostatic vesicle and containing *Lecithochirium*; (b) *Ceratotrema* without a prostatic vesicle and containing *Ceratotrema* and *Dissosaccus*; and (c) *Separogermiductea*, with the ejaculatory duct and the metraterm opening separately into the bursa, and containing *Separogermiductus* Skryabin & Gushanskaya, 1955 [n.g.] which is erected for *Sterrhurus inimici*. The genus *Sterrhurus* is suppressed. *Separogermiductus* also includes conditionally *Sterrhurus magnus*, *S. musigarei* and *S. pagrosomi*, while *Sterrhurus gymnothoracis*, *S. macrorchis*, *S. magnatestis*, *S. microcercus* and *S. monticellii* are transferred to *Lecithochirium* and *S. praeclarus* to *Musculovesicula* in the Lecithasteridae which was dealt with in volume IX]. *Lecithochirium* sp. Manter, 1934, *L. gravidum*, *L. medius* and *L. polynemus* are transferred to *Dissosaccus*. The Brachyphallinae are divided into two new tribes, (a) Brachyphallea, without a prostatic vesicle at the base of the hermaphrodite duct and containing *Synaptobothrium* and *Brachyphallus* which now includes *Lecithochirium acutum*, *L. parvum* and *Sterrhurus musculus*; and (b) *Plerurea*, with a prostatic vesicle and containing *Sterrhurus*, *Dinosoma*, *Letadena* and *Adinosoma* with the new combinations *A. exodica* (McFarlane, 1936), *A. japonica* (Yamaguti, 1938) and *A. microstoma* (Chandler, 1935). The generic position of fifteen insufficiently described lecithochiriid species remains undecided. (2) Elytrophallidae contains only *Elytrophallus mexicanus* and (3) Lampritremitidae only *Lampritrema nipponicum*. (4) Haploplanchnidae is divided into two subfamilies. (a) Haploplanchninae Skryabin & Gushanskaya, 1955 [n.subf.], characterized by the cylindrical ventral sucker situated on a projection of the body, by the little developed vitelline gland and the one long vas deferens functioning as the seminal vesicle, contains *Haploplanchnus* to which *Laruea caudatum* is transferred making *Laruea* a synonym. (b) *Schikhobalotrematinae* Skryabin & Gushanskaya, 1955 [n.subf.], characterized by the absence of a ventral body projection and by the well developed vitellaria and seminal vesicle, contains *Schikhobalotrema* Skryabin & Gushanskaya, 1955 [n.g.] (syn. *Deradena* pro parte) with *S. acuta* as type, *S. adacuta*, *S. brachyura*, *S. girillae*, *S. kyphosi*, *S. obtusa*, *S. pomacentri* and *S. sparisomae*, all being transferred from *Haploplanchnus* as new combinations.

G.I.P.



- 711—SKRYABIN, K. I., 1955.—[Trematodes of animals and man. Principles of trematodology. Volume XI.] Moscow: Izdatelstvo Akademii Nauk SSSR, 751 pp. [In Russian.]

This volume is divided into three sections, viz., the Didymozooiidae by Skryabin, the Monorchidae by Sobolev and the Halipegidae by Skryabin & Gushanskaya. (1) The Didymozooiidae now contains the four existing subfamilies Nematobothriinae, Gonapodasmiinae, Didymozooiinae, Köllikeriinae and Philopinninae n.subf. which is erected for *Philopinna* and characterized by the uniform width of the body and the presence of two suckers, hermaphrodite sex organs and two straight intestinal branches which join posteriorly. In the Nematobothriinae the type subgenus *Atalosparganum* Ishii, 1935 of the genus *Atalostrophion* MacCallum is renamed *Atalostrophion* Skryabin, 1955 [nom.nov.] and *Atalostrophium* sp. Ishii, 1935 becomes *Atalostrophion biovarium* Skryabin, 1955 [nom.nov.]. (2) Monorchidae now consists of three subfamilies (i) Monorchinae (of which Proctotrematinae becomes a synonym) embraces *Monorchis*, *Genolopa*, *Hurleytrema*, *Paramonorchoides*, *Postmonorchis*, *Paraproctotrema*, *Proctotrema* and *Telolecithus*; (ii) Monorchoidinae is restored to contain *Monorchoides* and conditionally *Diplomonorchis*; and (iii) Asymphyllodorinae includes *Palaeorchis* and *Asymphyllodora* with its new synonym *Parasymphyllodora*, the two species *Parasymphyllodora macrostoma* and *P. indica* having been returned to *Asymphyllodora*. An account of *A. macroacetabulum* Belous, 1953 found in *Misgurnus anguillicaudatus* from a lake near the river Ussuri, Maritime Territory, is published here for the first time. *Achoerus*, *Lasiotocus*, *Physochoerus* and *Pseudoproctotrema*, retained in Monorchidae, are not allocated to any of the subfamilies. (3) The hemiurid family Halipegidae (Derogenetidae Dollfus, 1950 is made a synonym) is divided into (i) Halipeginae containing *Halipegus*, *Genarchella*, *Gonocercella* and *Indoderogenes*; (ii) Derogenetinae containing *Derogenes*, *Derogenoides*, *Genolinea*, *Leurodera*, *Opisthadena*, *Parasterrhurus*, *Theletrum* and *Vitellotrema*; (iii) Bunocotylinae containing *Bunocotyle*; (iv) Genarchinae n.subf. containing *Genarches* (syn. *Genarchopsis*), *Ophiocorchis* and *Tangiopsis* n.g. erected for *T. chinensis* (Tseng, 1951) [n.comb.], is characterized by the absence of a hermaphrodite bursa and by the sequence in tandem of testes, ovary and the two compact vitelline glands which are posterior to the reunited intestinal caeca; (v) Gonocercinae n.subf. containing *Gonocerca* and *Hemiperina* and (vi) Dictysarcinae n.subf. containing *Dictysarca*. The last two families lack a hermaphrodite bursa and a seminal receptacle, but in Gonocercinae the rounded ovary is followed in tandem sequence by two vitelline glands and by the testes, while the uterine loops do not reach beyond the ovary. In Dictysarcinae the sequence is testes, two asterisk-shaped vitelline glands and a lobed ovary, while the uterine loops reach beyond the ovary. *Hemipera* and *Liocerca* are transferred to Liocercidae Skryabin & Gushanskaya, 1955 [n.fam. for which no diagnosis is given]. *Genarches* sp. Linton, 1940 is named *Genolinea lintoni* Skryabin & Gushanskaya, 1955 [n.sp.] and *Aponurus bowersi* becomes *Genolinea bowersi* Skryabin & Gushanskaya, 1955 [n.comb.].

G.I.P.

- 712—SKRYABIN, K. I. & DOBROKHOTOVA, A. M. [Editors], 1955.—[Diseases of sheep and goats.] Moscow: Selkhozgiz, 344 pp. [In Russian.]

- a. SHUMAKOVICH, E. E., 1955.—[Future problems in the investigation of methods for controlling helminthiasis in sheep.] pp. 191–199.
- b. ORLOV, I. V., 1955.—[On the problem of curing sheep of helminthiasis on collective and state farms.] pp. 199–206.
- c. BOEV, S. N., 1955.—[The application of phenothiazine as a prophylactic for helminthiasis of sheep.] pp. 206–210.
- d. DAVTYAN, E. A., 1955.—[Problems in the control of fascioliasis.] pp. 211–215.
- e. BONDAREVA, V. I., 1955.—[Epizootiology and prophylaxis of coenuriasis.] pp. 216–219.
- f. RONZHINA, G. I., 1955.—[Early diagnosis of coenuriasis in sheep.] pp. 220–228.
- g. ISMAGILOVA, R. G., 1955.—[Diagnosis of coenuriasis in sheep by allergic reactions.] pp. 228–232.
- h. RUKHLYADEV, D. P., 1955.—[Measures of control of dictyocauliasis and monieziasis by seasonal-pasturing in sheep farming in Dagestan.] pp. 232–237.



i. OZERSKAYA, V. N., 1955.—[The testing of dithiazine against muelleriasis and dictyocauliasis of sheep.] pp. 237-246.

(712b) The State sheep farms in the Crimea are badly affected by helminths, e.g. 50% of the deaths of sheep on one such farm had been caused by *Dictyocaulus*, 20% by *Chabertia* and 10% by a combination of both. Advice is given on suitable management of the sheep and on the way of dealing with infections. G.I.P.

(712c) Boev reviews data on the application of small daily doses of phenothiazine against trichostrongylidosis of sheep in Russia and includes some results of earlier experiments. G.I.P.

(712d) In the semi-desert salt-marsh zone of Armenia 97 out of 100 cases of fascioliasis of sheep were due to *Fasciola gigantica*. G.I.P.

(712f) [This is a shortened and simplified version of the paper published in 1953. For abstract see Helm. Abs., 22, No. 996do.]

(712g) Coenurus infection in 300 sheep and four calves was satisfactorily diagnosed by using the polysaccharide extract from cyst fluid and scolices, which was better and more exact than the fresh fluid and the protein extract. The dose injected into the upper eyelid was 2 ml. for sheep and 0.5-0.75 ml. for cattle, and the best concentrations were 1:500 and 1:750. A swelling of at least 2.1 cm. in diameter for sheep and 3.5 cm. for cattle was regarded as positive. The reaction first became positive 15 days after experimental infection of sheep before any appearance of symptoms and remained so for as long as one year after surgical treatment of the cyst. The difference in swelling produced when Coenurus allergen is injected into one eye and Echinococcus and Cysticercus allergen in the other was used to distinguish between these infections. G.I.P.

(712i) [This is a shortened version of the paper published in 1953. For abstract see Helm. Abs., 22, No. 996cs.]

713—SPEARS, J. F., 1955.—“Progress report of soybean cyst nematode control program for calendar year 1955.” Hicksville, N.Y.: U.S. Department of Agriculture, Agricultural Research Service, Plant Pest Control Branch, 25 pp. [Marked “administratively confidential.”]

714—SPEARS, J. F., 1955.—“Progress report of golden nematode control project for calendar year 1955.” Hicksville, N.Y.: U.S. Department of Agriculture, Agricultural Research Service, Plant Pest Control Branch, iv+49 pp. [Marked “administratively confidential.”]

715—SPEARS, J. F., 1955.—“Progress report of burrowing nematode control program for calendar year 1955.” Hicksville, N.Y.: U.S. Department of Agriculture, Agricultural Research Service, Plant Pest Control Branch, iv+38 pp.

Spreading decline of citrus due to the nematode *Radopholus similis* affects over 6,000 acres of citrus and avocado groves in Florida. A full account is given of the organizations, both State and Federal, and the methods used in surveying affected areas and attempting to control the disease. A pull-and-treat method of control is in use, the affected trees and their neighbours being pulled and burnt and the soil treated with D-D mixture. Nursery stock is disinfested by immersion of the bare roots in water at 122°F. for ten minutes. In a section on research Suit, Ducharme, Brooks & Ford (University of Florida Citrus Experiment Station) a list is given of 24 new hosts of the burrowing nematode. *Litchi chinensis* was grown in infested soil for three years without becoming infected. The annual rate of spread of the nematode may be as much as 180 ft. downhill. Root-stocks are being studied in a search for resistance

and experiments on the treatment of individual trees by the application of chemicals to the soil or injected into the tree are mentioned. Another research report is that by the Fruit and Nut Crops and Nematology Sections of the Horticultural Crops Branch, Agricultural Research Service. In studies of nematicides the organic mercurial Aaventa was found to kill nematodes on the roots of many ornamentals which were dipped in a 1% solution for one hour. Other work in progress includes studies of the effects of temperature and soil moisture on *R. similis*, *in vitro* cultures and cross-inoculation tests with populations from different hosts. In an appendix there is a list of 115 plant species (excluding *Citrus*) considered as hosts and suspected hosts of the burrowing nematode.

M.T.F.

716—\*STÖHR, H., 1955.—“Die Verbreitung parasitärer Tierkrankheiten im Ober—Westerwald—Kreis.” Dissertation, Giessen, 49 pp.

717—\*TIXERANT, G., 1955.—“Oesophagostomose nodulaire du mouton et de la chèvre.” Thesis, Lyons, 69 pp.